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ACORN USER

Essential for all users of 32-bit RISC OS computers

INCORPORATING Acorn COMPUTING



StrongARM

You'll believe an Acorn can fly

We reveal the details of the ARM/Digital deal

Conway's game of Life is born again on the Arc

Prophet 2 accounting software reviewed

CSH's ground-breaking Burns CD-ROM reviewed

The ACORN USER DISC — JULY 1995

Life – a fascinating simulation

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Plus

- Internet Starter Kit pt. 4
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JULY 1995 Issue 157 £3.25

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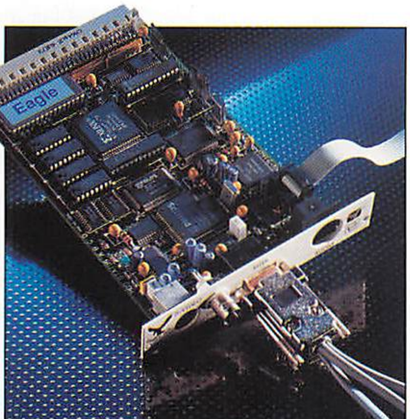
MAKE THE MOST OF MULTI-MEDIA

Are you wondering how to make the most of the multimedia resources available to you — scanned images (drawings or photos etc), video clips, music and sound samples, Replay movies, MPEG video clips or movies, teletext......?

Computer Concepts offer a range of related products that can help you produce your own sound and video productions; all the hardware and software you need to input, manipulate and output stills, video and sound.

EAGLE M2

The ultimate multi-media expansion card — combining the functionality of a high quality (24bit) video digitiser with real time digital movie capture facilities, stereo sound sampling and playback, plus MIDI. All the software you will need to manipulate the captured data is included in the package — TakeTwo for video manipulation, ScanLight for grabbing and manipulating still images, AudioWorks for manipulating audio samples and generating audio effects and !AudioCtrl provides mixing facilities. The card is also sold with real time video movie compression software from Eidos, which considerably speeds up and simplifies the process of movie generation. The video files you create can be played back using Acorn Replay. Suitable for any Acorn RISC computer except 3000/4000 series, requires 2MBytes RAM and RISC OS 3.1 or later (4MBytes, an ARM3 and a high data rate IDE or SCSI hard drive for movie recording and sound output).



An optional extra is the latest release from Eidos — their Eidoscope video editing software, which can be used to edit movies created on an Eagle card and includes many professional video editing tools.

EIDOSCOPE

Price: Eagle card with Eidos compression software: £329 + £6 p&p + VAT (£386.57 inc.) Eagle card with Eidoscope: £449 + £6 p&p + VAT (£534.62 inc.) Eidoscope for existing Eagle owners: £169 + VAT (£198.57 inc.)

Acorn Replay

Lark

16 BIT STEREO/AUDIO SYSTEM FOR ACORN RISC COMPUTERS

A 16 bit audio sampling and play back expansion card. Features include stereo line-level input and output, MIDI connection and software support. A copy of AudioWorks is included to handle the capture, manipulation and playback of samples and a copy of !AudioCtrl which controls the Lark's sampling options (for example sampling to memory or disc, continuous of single shot sampling, background or foreground sampling and setting of sample rates and formats). Suitable for any Acorn RISC computer except 3000/4000 series, requires 2MByte and RISC OS 3.1 or later.

Price £199 + £6 p&p + VAT (£240.87 inc.)



MidiMax Card

An expansion card designed to provide a stand alone MIDI solution at an affordable price. A 16 byte memory buffer is included on the card for both transmit, and receive which means no data is lost even when the MIDI interface is transmitting at maximum rate. Standard MIDI In, Out and Thru connectors are provided, with the added benefit of a second Out connector to ease the interfacing of multiple devices. MidiMax is supplied with the same MIDI support software as the Eagle M2 and offers full compatibility with Acorn MIDI implementation. Suitable for any Acorn RISC computer except 3000/4000 series, requires 1MByte and RISC OS 3.1 or later.

Price: £69 + £6 p&p + VAT (£88.12 inc.)

IN THE ACORN WORLD

ScanLight VIDEO 256

Combining the ScanLight 256 scanner (400 dpi, 256 grey levels) and GreyHawk digitiser. The digitiser offers real time greyscale video digitising from any video source. Includes the ultra-fast 'TakeOne' previewer, allowing live video in a window on the desktop — at quarter screen size this can update at 50 frames per second, far faster than any other digitiser. ScanLight software provides image enhancement of captured images, such as smoothing,



rotation, cropping, sharpening. Suitable for all models of Acorn RISC computer with 2MBytes.

Computer Concepts offer a range of other colour and greyscale scanners and digitisers — please ask for further details.

Price: £220 + VAT (£258.50 inc.)

MOVIE Magic

The MPEG card allows full screen, full motion MPEG videos to be played back at better than VHS quality, with CD quality stereo sound tracks. MPEG videos can be played from hard disc or MPEG compatible CD ROM drives. Any Video CD format CDs are suitable (feature films, music videos etc) as are multimedia CDs that include MPEG clips. Any application that can display Replay movies can play MPEG movies. The software provides video type control over the movie eg fast forward, pause etc. Any frame can be captured as a 24 bit full colour sprite. Requires a Risc PC with 4MBytes and a suitable RGB monitor or TV capable of 50Hz PAL modes.

Price: £249 + £6 p&p + VAT (£299.62 inc.)



TV. TUNER

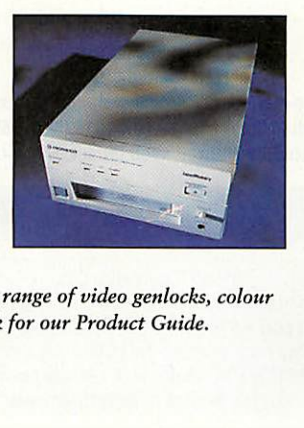
TV tuner comes in two forms; a tuner only device which allows live TV to be displayed, either through connection to a video composite compatible monitor or in a window on the desktop in machines that have a digitiser installed. The user can scan the frequency range, set up frequency pre-sets and select channels. The second option with Teletext software can access and display all the pages available on Teletext, select Teletext or Fastext pages, decode foreign teletext and save pages out as either text or sprite files. Suitable for any Acorn RISC computer except 3000/4000 series, requires 2MBytes and RISC OS 3.1 or later.

Price: TV Tuner only £89 + £6 p&p + VAT (£111.62 inc.)
TVTuner+Teletext software £159+£6 p&p + VAT (£193.87 inc.)

Pioneer 602X CD Rom drive

Many multimedia resources are supplied on CD, so Computer Concepts also include a CD ROM drive in their range. The Pioneer DRM-602X is a double speed (300 kilobytes per second transfer rate), 6 disc CD ROM drive. Multi session PhotoCD compatible. It can also be used for standard audio compact discs. ArtWorks clip-art CD disc included. Suitable for any model of Acorn RISC computer, requires 2MBytes and a fully Acorn compatible SCSI card with CDFS 2.2.

RRP: £499.00 + £10 p&p + VAT (£598.07 inc.)



Computer Concepts have other products in their range which can also be used in this field — for example a range of video genlocks, colour digitisers and flatbed scanners, the ColourCard graphics accelerator card and many more. Please ask for our Product Guide.

Computer Concepts Ltd

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Editor's letter

When we heard that Digital was joining forces with ARM Ltd to create a new kind of super chip – the StrongARM – you can imagine our reaction: faster machines, here we come. It's a vindication of Acorn's policy of using ARM chips in its machines, and having them on plug-in boards: the StrongARM is compatible with the current ARM chips Acorn uses, so there shouldn't be a major problem with banging a StrongARM in your Risc PC. Read all about it on page 35.

I'd also like to thank all of you who filled in our reader survey from the May issue. We had a great response, and next month we'll let you know just what our reader profile looks like. It makes interesting reading.

Mark Moxon, Editor

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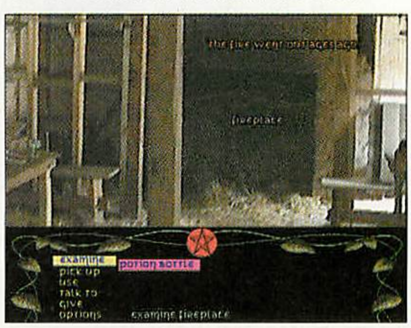
Member of the Audit Bureau of Circulation
Acorn User is an independent publication and Acorn is not responsible for any of the articles in this issue or for any of the opinions expressed

Published by IDG Media Ltd, Media House, Adlington Park, Macclesfield SK10 4NP
e-mail mark@acornusr.demon.co.uk
Tel: (01625) 878888 Fax: (01625) 850652
Printed by Duncan Web Offset, Maidstone

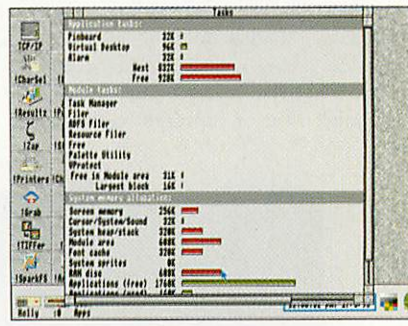
13 issue subscription rate: £37.99 (UK), £53.99 (EU), £68.99 (World)

REGULARS





HANDS ON

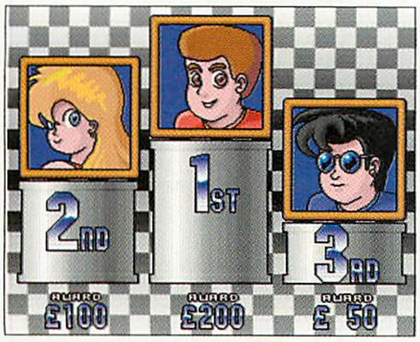


EDUCATION



July 1995

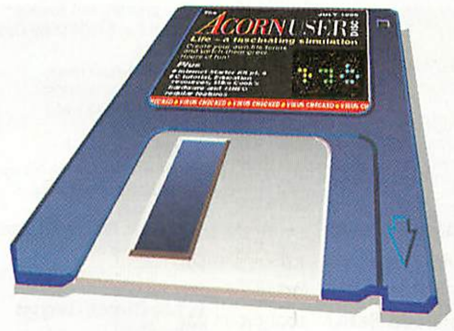
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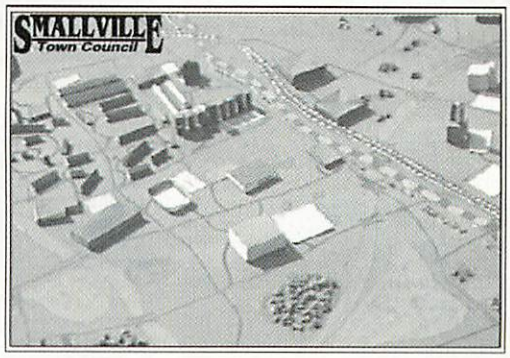


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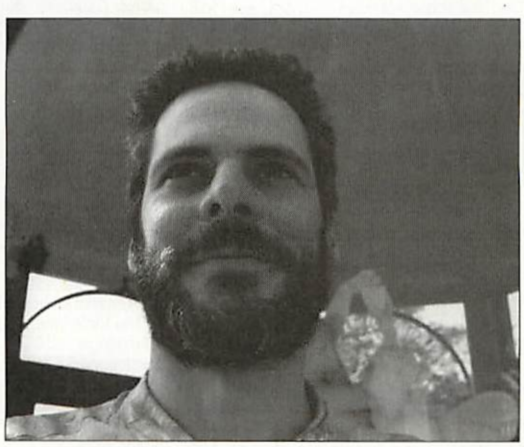
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NEXT ISSUE ON SALE 13 JULY

ICS

0151-625 1006

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Selected prices 23rd May 1995

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Advance secondary site licence	ACOR	£440
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– primary site licence, KS1,2	LONG	£70
First Page, KS2-4	LONG	£42
– primary site licence, KS2-4	LONG	£132
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– site licence	ICSO	£80
Fontasy site licence	ICSO	£45
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Stage 2 More Talking Stories A		£35
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– secondary site licence	LONG	£370
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Placard site licence	ICSO	£30
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Deskjet 500/550C	BEEB	£15
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ProArtisan 24 (Risc PC only)	CLAR	£125
ProCAD, KS4	MINE	£450
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PublishArt, ArtWorks Format	SMAR	£25
PublishArt, Draw Format	SMAR	£25
Quest for Gold	KRIS	£19
QuicKey	ICSO	£10
QuicKey site licence	ICSO	£30
Rainbow, KS1,2	LONG	£28
Rainbow site licence, KS1,2	LONG	£89
Real McCoy 4	FOUR	£22
Recordz	COLT	£97
– primary site licence	COLT	£189
– secondary site licence	COLT	£385
RemoteFS Parallel Port	ATOW	£49
RemoteFS Serial Port	ATOW	£49
Render Bender 2	CLAR	£40
Rephorm	OAKS	£45
Report Writer KS1/2, KS1/2	CREA	£48
Report Writer KS3/4, KS3/4	CREA	£48

Item	Supplier	Price
Repro	OAKS	£46
Resultz	COLT	£75
Resultz secondary site licence	COLT	£312
Revelation 2, KS2-4	LONG	£38
Revelation ImagePro 24 bit, KS2-4	LONG	£48
– secondary site licence	LONG	£328
Rhapsody 2	CLAR	£48
Rhapsody 3	CLAR	£74
Rhythm-Bed	CLAR	£38
RISC OS 3 Applications Upgrade	ACOR	£10
RISC OS 3 Programmer's Reference Manual	ACOR	V0£99
RISC OS 3 User Guide for Risc PC 600	ACOR	V0£22
RISC OS Style Guide	ACOR	V0£13
Risc PC Technical Reference Manual	ACOR	V0£35
RiscBASIC Compiler	SILO	£77
Rosie and Jim, age 4-6: Duck loses his Quack, Jim gets the Sneezes	SHER	£10
Round the World Yacht Race, age 9+	STOR	£26
RTF and WordPerfect Loaders and Savers	COMC	£28
S-Base 2 Developer	LONG	£92
– site licence	LONG	£398
S-Base 2 Personal	LONG	£47
– site licence	LONG	£189
Sally and Wally	OREG	£20
Saloon Cars Deluxe	FOUR	£22
– Extra Courses	FOUR	£15
Schema 2	CLAR	£95
Science	MICS	£23
Scrabble	USGO	£21
ShapeFX	DATS	£10
Sibelius 6	SIBE	£134
– primary site licence	SIBE	£289
– secondary site licence	SIBE	£539
Sibelius 6 + Sibelius 7 Student	SIBE	£525
Sibelius 6 secondary site licence + Sibelius 7 Student	SIBE	£749
Sibelius 7	SIBE	£736
Sibelius 7 Student	SIBE	£464
– site licence	SIBE	£959
Sim City	KRIS	£22
Sim City 2000 for A5000	KRIS	£30
Sim City 2000 for Risc PC	KRIS	£30
Simon the Sorcerer	GAME	£28
Sleuth	BEEB	£50
Sleuth 2	BEEB	£93
smArt (not Risc PC)	4MAT	£33
Smart Borders +, ArtWorks Format	SMAR	£12
Smart Borders +, Draw Format	SMAR	£12
Smart Borders 2	SMAR	£12
smArtFiler	4MAT	£24
Smudge the Scientist, age 4+	STOR	POA
Smudge the Spaniel, age 4+	STOR	£19
– site licence, age 4+	STOR	£42
SnapHappy	OAKS	£19
Snippet	4MAT	£32
SolidCAD	SILO	£77
Somerset Talking Computer Project Learning Materials	LONG	V0£29
Space City, age 7-9	SHER	£25
SparkFS	PILL	£20
Special	ICSO	£10
Special site licence	ICSO	£30
Speech!	SUPE	£18
Speedball II	KRIS	£18
Spelling week-by-week	CHAL	£20
Spex	ASPE	£98
Split an Image (not Risc PC), age 6-16	SHER	£17
Star Fighter 3000	FEDN	£23
Starspell Plus	FISH	£19
Studio24	PINE	£165
Stunt Racer 2000	FOUR	£24
– Extra Tracks	FOUR	£16
Swiv (not Risc PC)	KRIS	£9
TableCalc	ISVP	£24
TABS	ASPE	£95
Talking Clocks	TOPO	£32
Talking PenDown, KS1-3	LONG	£53
– primary site licence	LONG	£189
Technodream (Nevryon 2)	SUPE	£19
TechWriter Professional	ICON	£195
Textease with Spelling Checker	SOFE	£39
– primary site licence	SOFE	£79
– secondary site licence	SOFE	£118
Time Detectives ... The Victorians, age 7-11	SHER	£42
Time Machine	FOUR	£19
Time Traveller, KS2	ESMO	£39
Time Traveller, KS2 :	ESMO	
Britain Since 1930		£28
The Victorians		£30
Tudor and Stuart Times		£33
TinyDraw/TinyLogo	TOPO	£25
Titler	CLAR	£77
Topographer	CLAR	£59
Touch Type	IOTA	£38
– site licence for 10	IOTA	£137
Trace	PILL	£9
TurboDriver: Canon, Epson Stylus 800, HP	COMC	£39
Twain, various titles	PILL	£16
Tween	OAKS	£27
TWO (Task and Window Organiser)	ICSO	£10
– site licence	ICSO	£30
TypeStudio	BEEB	£38
Vector (not Risc PC)	4MAT	£75
VersaTile	OAKS	£42
Videopack, various titles	ANGL	£34
Virtual Golf	FOUR	£22
Vox Box	CLAR	£40
Voyage of Discovery, age 9-13	SHER	£31
WimpGEN	SILO	£76
Wolfenstein 3D	POWE	£23
Wordz	COLT	£54
WorraCad	OAKS	£65
WorraCad site licence	OAKS	£275

Acorn Risc PC 600

Item	Supplier	Price
5M HD210		£1145
5M HD210 14" Monitor		£1294
5M HD210 17" Monitor		£1575
5M HD210 CD System 14" Monitor		£1499
5M HD210 CD System 17" Monitor		£1775
9M HD420		£1445
9M HD420 14" Monitor		£1594
9M HD420 17" Monitor		£1875
9M HD420 CD System 14" Monitor		£1794
9M HD420 CD System 17" Monitor		£2075
Case Mid Upgrade for Risc PC 600 2M and 5M	ACOR	£98
Ethernet Network Interface Card for Risc PC 600	ACOR	£98
Hard Disc Fitting Kit for Risc PC 5¼" bay	ICSO	£20
IDE Internal Interface	ICSO	£60
IDE Removable Hard Disc Kit for Risc PC, 270 Mb	ICSO	£409
Indigo CD Rom Drive CAA300iA	CUMA	£212
Removable Hard Disc Fitting Kit for Risc PC 5¼" bay	ICSO	£20
Risc PC 486 Card, special offer if ordered with computer	ACOR	£99
Risc PC Sound Card	ACOR	£58
SCSI II Interface for Risc PC	CUMA	£165
SIMM 4 Mb 32 bit		£120
SIMM 8 Mb 32 bit		£225
SIMM 16 Mb 32 bit		£370

Acorn Portables

Item	Price
Pocket Book 256K	£165
Pocket Book Class Pack	£1599
Pocket Book II 256K	£222
Pocket Book II 512K	£269
Pocket Book II Class Pack	£2275
A-Link for Pocket Book	£43
Flash Disc 256K for Pocket Book	£46
Mains Adaptor for Pocket Book	£15
Parallel Link for Pocket Book	£26
RAM Disc 128K for Pocket Book	£42
Battery Pack for A4	£53

ICS Hard Disc Kits

PLEASE SPECIFY OS 2 OR OS 3 FOR ALL KITS AND INTERFACES

Item	Price
IDE Internal Hard Disc Kit for A3000 Series :	
80 Mb	£149
120 Mb	£185
240 Mb	£299
Internal Interface only	£75
IDE Internal Hard Disc Kit for Archimedes Range :	
240 Mb In short supply – please check	£199
330 Mb In short supply – please check	£225
420 Mb	£275
540 Mb	£299
1000 Mb	£499
Internal Interface only	£60
Hard Disc Cradle Kit for Archimedes	£15
Hard Disc Fitting Kit for A3000	£7
Hard Disc Fitting Kit for A3020	£7

ICS IDE Hard Discs

Item	Price
IDE 2½" Hard Disc, 80 Mb	£89
IDE 2½" Hard Disc, 120 Mb	£125
IDE 2½" Hard Disc, 240 Mb	£239
IDE 3½" Hard Disc, 240 Mb	£149
IDE 3½" Hard Disc, 330 Mb	£175
IDE 3½" Hard Disc, 420 Mb	£225
IDE 3½" Hard Disc, 540 Mb	£249
IDE 3½" Hard Disc, 1000 Mb	£449
Form Factor Converter 2½" to 3½"	£7
Second Hard Disc Fitting Kit for A5000	£15
Second Hard Disc Y Power Lead	£7

ICS Removable IDE 3½" Hard Discs

Item	Price
Cartridge, 105 Mb	£52
Cartridge, 270 Mb	£55
Kit for A5000, 270 Mb	£399
Fitting Kit for A5000	£25

Printers

Item	Supplier	Price
A4-1200/1 Direct Drive Laser Printer	CALL	£978
Bubble Jet BJ-10sx	CANO	£149
Bubble Jet BJ-30	CANO	£179
Bubble Jet BJC-70	CANO	£275
Bubble Jet BJ-200ex	CANO	£212
Bubble Jet BJC-600	CANO	£359
– Ink Cartridge, Black	CANO	£9
– Ink Cartridge, Cyan	CANO	£10
– Ink Cartridge, Magenta	CANO	£10
– Ink Cartridge, Yellow	CANO	£10
Bubble Jet BJC-800 + TurboDriver		£1160
– Ink Cartridge, Black	CANO	£16
– Ink Cartridge, Cyan	CANO	£19
– Ink Cartridge, Magenta	CANO	£19
– Ink Cartridge, Yellow	CANO	£19
Bubble Jet BJC-4000	CANO	£270
– Ink Cartridge	CANO	£40
– Ink Cartridge, Black	CANO	£26
– Ink Tank, Black	CANO	£9
– Ink Tank, Colour	CANO	£15
DeskJet 500 Series Tri-chamber Colour Ink Cartridge	HEWL	£23
DeskJet 540	HEWL	£229
DeskJet Ink Cartridge, Black	HEWL	£21
EP-L Toner Cartridge for LBP-4	CANO	£59
EP-S II Toner Cartridge for LBP-8	CANO	£69

Memory

Item	Supplier	Price
A3000 1 - 2 Mb	IFEL	£57
A3000 1 - 4 Mb	IFEL	£110
A3010 1 - 2 Mb	IFEL	£38
A3020 / A4000 2 - 4 Mb	IFEL	£74
A305/310/440 1 - 2 Mb	IFEL	£83
A305/310/440 1 - 4 Mb soldered with MEMC1A	IFEL	£173
A5000 2 - 4 Mb	IFEL	£79

Other hardware

Item	Supplier	Price
486 PC Card 25 MHz 4 Mb	ALEP	£455
486 PC Card 50 MHz 4 Mb	ALEP	£523
A3010:	ACOR	
Action Pack		£249
2M Early Years		£319
2M Early Years Med-Res SVGA Multiscan System		£499
2M Learning Curve		£319
2M Learning Curve Med-Res SVGA Multiscan System		£481
A3020 FD Med-Res SVGA Multiscan System	ACOR	£589
A305/310/440 RISC OS 3 Carrier Board	IFEL	£19
A4000 HD210 Med-Res SVGA Multiscan System	ACOR	£839
AnDi Oddule	BAIL	£49
Backplane, 4-slot 4-layer with fan	IFEL	£55
ColourCard Gold	COMC	£195
DMI 30	AUDI	£73
DMI 50	AUDI	£84
DMI 50 - S	AUDI	£162
Dongle Dangle	ICSO	£6
Eagle M2	COMC	£315
Ergo-keyboard	CAST	£90
Fan Filters (pack of 10) (not A5000 or Risc PC)	ICSO	£6
Fan Kit for A300 / A400	ICSO	£15
Lambda16	IRLA	£98
Lark A16	COMC	£195
Logitech Mouse for Acorn		£19
Midi Max	COMC	£68
Movie Magic	COMC	£245
Power Pad (Dual)	ECLI	£29
Power Pad (Single)	ECLI	£22
PowerWAVE 30	AUDI	£177
PowerWAVE 50	AUDI	£195
PowerWAVE 50 - S	AUDI	£245
RISC OS 3 Bulk Software Upgrade Kit (set of 10)	ACOR	£325

ICS

0151-625 1006

Item	Supplier	Price
RISC OS 3 Software Upgrade Kit	ACOR	£77
ScanLight 256	COMC	£158
ScanLight 256 for A3000/3101/3020/A4000	COMC	£168
ScanLight Video 256	COMC	£205
– A3000/A4000	COMC	£205
Sound Force 1 Multimedia Speaker System	QUIC	£34
SVGA Multiscan PS Monitor 17"	ACOR	£589
TV Tuner	COMC	£88
TV Tuner with Teletext	COMC	£157
User Port / MIDI Upgrade for A3000	ACOR	£48
Vision 24:	HCCS	
A3000 external		£109
A3000/3010/3020/4000 internal		£96
A5000/400/300/RPC600		£96
Vision 24 508 line:	HCCS	
A3000 external		£149
A3000/3010/3020/4000 internal		£134
A5000/400/300/RPC600		£134
Whisper Fan Quietener (for A300/A400 Series only)	ICSO	£15
Wizzo5 for A5000	ICSO	£39

HOW TO ORDER

Carriage is free within mainland UK if you pay on ordering.

Cheques should be made payable to Ian Copestake Limited.

You may also pay by ***credit card***, ***debit card*** or ***Switch***. We normally make ***no charge*** for this, and take no payment until goods are despatched. We need your address as known to the card issuer.

If you leave an order on our ***answering machine*** please include your telephone number, your card number and its expiry date (and issue number if any), and your calculation of the total payment due.

Official orders are welcome from UK educational and government institutions (invoices are due for payment within 14 days and are subject to carriage and late payment charges).

VAT is not included. Zero-rated items are marked V0. UK customers please add 17½% to all other prices. EC customers outside the UK please do the same unless you are VAT-registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.

ICS

0151-625 1006

Authorised Acorn Dealer and Developer

Please make cheques payable to Ian Copestake Limited

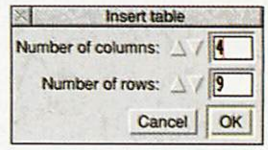
Dept U17, 1 Kington road, West Kirby, WIRRAL, Merseyside, England, L48 5ET

Tel: 0151-625 1006 Fax: 0151-625 1007

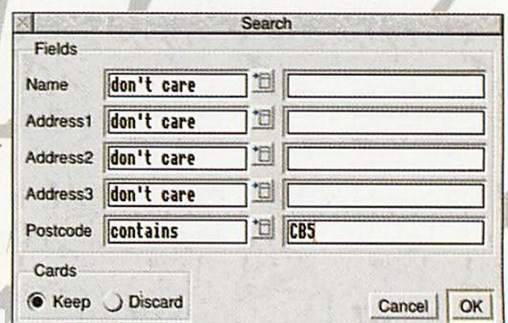
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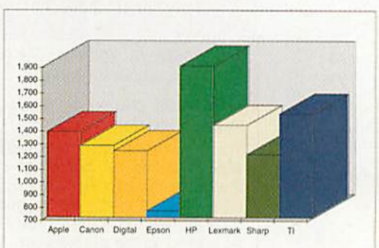
Fireworkz Pro

All the software you ever wanted

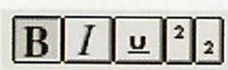


- Straightforward word processor with live table editor, style system, rulers, spelling checker and mailshots
- Super spreadsheet with fast background calculation, programming language, on-screen page breaks, fonts, lines and boxes
- Integrated database with card and spreadsheet layouts. Fast searching and sorting. Calculated fields and picture fields. Queries are saved and loaded with the database





- Live colour charts linked to the spreadsheet. Draw bar, line, pie, xy and overlay charts. Export charts as drawfiles
- Drag and drop loading and positioning and sizing of drawfiles and sprites
- File and user interface compatibility with Fireworkz for Windows
- Fantastic integration: include live spreadsheets in letters, databases in spreadsheets and so on
- Easy label printing



- One easy point and click interface with button bar and help and status line for all the features
- File types include CSV, ASCII, Lotus 123, RTF and First Word Plus, DataPower and Excel
- First class technical support
- From Colton Software

Nothing else on RISC OS comes close

COLTON software

- Fireworkz Pro costs £149 plus VAT and postage
- Upgrades are available from other Colton products
- RISC OS 3.1 is recommended
- You need at least 2MB of RAM

2 Signet Court
Swann's Road
Cambridge
CB5 8LA

Tel: 01223 311881, Fax: 01223 312010

Name
Address

Postcode

Please send me more information about Fireworkz Pro

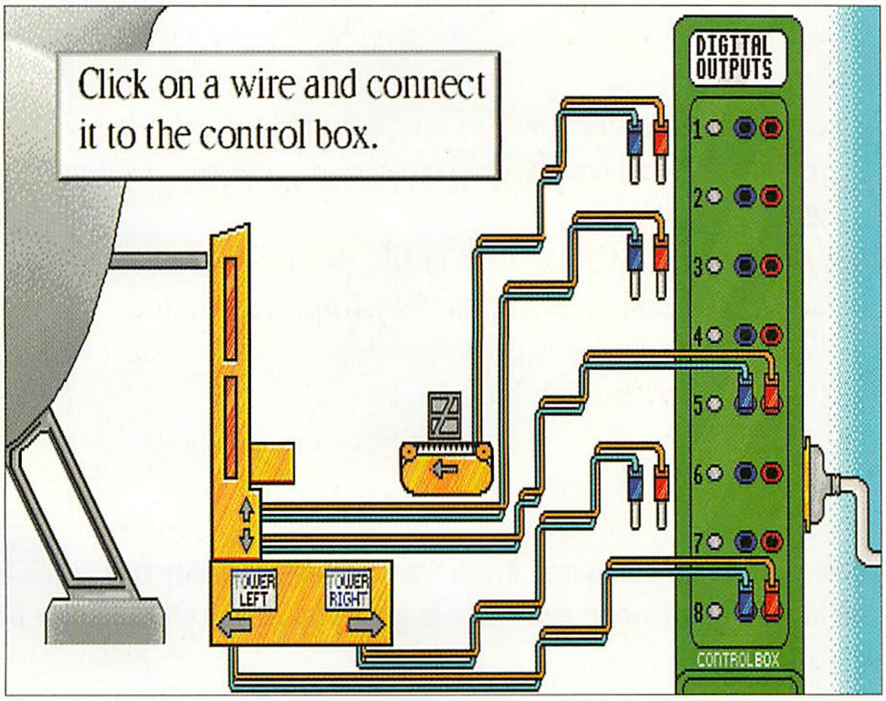
News

Crystal Rain Forest sequel

THE sequel to Simon Hosler's BETT Gold Award winner, *Crystal Rain Forest,* will be officially launched at the World Conference of Computers in Education in Birmingham between 21-28 July by Sherston Software. *Mission: Control – Crystal Rain Forest 2* retains many familiar characters from the original title and the scene is once more set by Hosler on the planet Oglo. However, knowledge of the original adventure is not necessary before tackling the new release, which introduces children to aspects of control technology.

To support *Mission: Control – Crystal Rain Forest 2* Sherston has produced *The Rain Forest Resource Book* – a 100-page publication containing class project activities which introduce rain forest flora and fauna, plus the native Amazonian Indians, their art and culture. Sherston has priced *Mission: Control – Crystal Rain Forest 2* at £44.95 + VAT for the single-user version and the *The Rain Forest Resource Book* is priced £13.95.

Sherston Software
Tel: (01666) 840433
Fax: (01666) 840048



The sequel to *Crystal Rain Forest* introduces children to aspects of control technology.

Sibelius 7 now a Turnkey solution

IF a prize was to be awarded for an Acorn product which has generated the most publicity in recent months, the Acorn-based *Sibelius 7* computerised music scoring package would probably win it. It has been on TV, in the national press and the specialist press – even to the extent that a Risc PC was termed a *Sibelius 7* computer in one national newspaper. *Sibelius 7* has also featured in public performances broadcast to far flung reaches of the world, and now mere mortals can see it at its very own specialist showroom in London, courtesy of computer music specialists Turnkey.

Acorn hardware running *Sibelius 7* is featured in the Turnkey showroom side by side with IBM-compatible systems running Microsoft Windows-based software. Staff familiar with both systems are on hand to give advice and Turnkey promises not to pressurise customers into buying either alternative. That said, Turnkey describes *Sibelius 7* as: 'arguably the most powerful notation publishing package available on any computer.' Turnkey sells *Sibelius 7*, complete with Risc PC computer, for £2000 + VAT or £499 + VAT for the software on its own.

Turnkey
Tel: 0171-379 5148
Fax: 0171-379 0093
E-mail: rgfincher@cix.compulink.co.uk
WWW: http://www.demon.co.uk/turnkey

Cataloguing Concept Keyboards

TOUCH-SENSITIVE keyboards, popularly know as 'concept or overlay keyboards' are practically part of the scenery in modern primary and special needs school classrooms. The Concept Keyboard Company, based in Winchester, appears to be recognising the fact that the available choice of such keyboards and related software packages and overlays is so large these day that it can prove to be a stumbling block to potential purchasers.

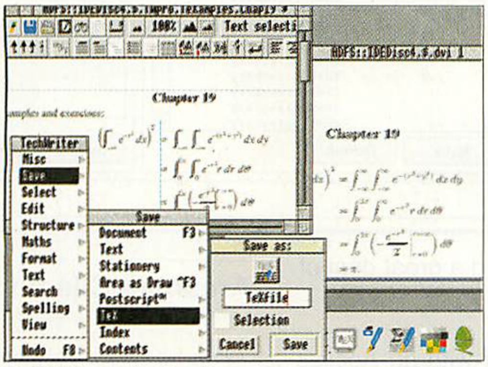
Hence the publication of a new full-colour brochure illustrating the entire Concept Keyboard range from A3 models right down to the compact Touch'n'Go model designed for use with portable computers.



The Concept Keyboard company's range of touch-sensitive keyboards, which now comes with a brochure.

The Concept Keyboard Company
Tel: (01962) 843322
Fax: (01962) 841657

Icon Technology gets professional



TechWriter Professional can now save documents in *TeX* format.

NEW versions of Icon Technology's *EasiWriter* and *TechWriter* word processors were introduced at the *Acorn User* Spring Show. The new versions with the 'Professional' tag feature a number of common enhancements like index and contents generation, bookmarks, automatic number of lists, crop marks, improved german hyphenation, more flexible white space and PostScript-compatible saving.

TechWriter Professional, the version of *TechWriter* for editing mathematical formulae, is apparently causing a stir because it can now save documents in *TeX* format, something which is very rarely supported in other text editors and very sought after in higher education circles. There has even been talk of Acorn computers being purchased just to be able to run *TechWriter Professional*. Icon's implementation of *TeX* is also said to be simple and easy to use.

EasiWriter Professional is priced £119 + VAT, *TechWriter Professional* is £199 + VAT and the ordinary versions of both are reduced in price to £89 and £149 respectively.

Icon Technology
Tel: (0116) 2546225
Fax: (0116) 2470706
e-mail: mike@lccapple.demon.co.uk

Chroma Genlock 6

Who said Computer Concepts had abandoned the Acorn market? At the recent *Acorn User* Spring Show in Harrogate, CC demonstrated the latest version of its Chroma Genlock video card, which is Risc PC-compatible for the first time. The new card is now no longer restricted to a maximum of 256 colours in the computer-generated overlay image – with a Risc PC you can now overlay 32,000 colour or 24-bit (16.7 million colour) images. Risc PC hardware compatibility is catered for via a new genlock header and a small daughterboard which supplements VIDC20 clock signals. Supplied software has also undergone minor changes in the quest for Risc PC compatibility, though backwards compatibility with software designed for the Chroma Genlock models three, four and five is mostly ensured. An interesting point is that it is now possible to rig up a crude picture in picture arrangement if you have an Eagle multimedia card.

The Eagle's digitised video output in 32,000 colours can be overlaid onto video as a small screen within a screen – suitable perhaps for recording sign language annotation, for example. Theoretically, it is technically possible to modify earlier Chroma Genlock cards to bring them up to version six specification, but CC had not decided on an upgrade path at the time of writing. Chroma Genlock six remains priced £149 + VAT.

Computer Concepts
Tel: (01442) 351000
Fax: (01442) 351010
E-mail: info@cconcepts.co.uk

Acorn User diary

Date	Event	Venue	Contact
10 June	ARM Club open day	Belmont School, North London	The ARM Club: 0171-624 9918
13 July	Online Media talk	Ipswich Library Lecture Room (7pm)	Suffolk Acorn RISC club: (01473) 728943, e-mail: PSkirrow@arcade.demon.co.uk
21 – 28 July	World Conference on Computers in Education	Birmingham International Conference Centre	WCCE95: 0121-428 1258, e-mail: wcce95@cs.aston.ac.uk
9 Sept	ARM Club open day	Leicester High School for girls	The ARM Club: 0171-624 9918
27 – 29 Oct	Acorn World '95	Wembley Exhibition Hall 1	Ticket hotline: (01933) 441448

Software from Greece

Athens-based Gordian Systems has announced two new security products for the Acorn platform: the *Gordian Lock 3* floppy disc protection systems and the *Gordian Installer* hard disc protection system.

Gordian Lock 3 is described as the ultimate floppy disc anti-copying scheme for Acorn RISC OS computers. Apparently it has defeated all the established RISC OS-based disc copying utilities and has seen away the ultimate disc copying machine, the Commodore Amiga. Self-modifying code and data encryption techniques are used though Gordian systems stresses that its code conforms to Acorn guidelines. Minimal space on the floppy disc is used by the protection scheme and you should expect at least 781K of usable space from an 800K disc. Gordian Systems says the most common form of unauthorised software copying is where hackers disable or remove the anti-copy code and distribute the remaining software. This should be practically impossible with *Gordian Lock 3*, so only industrial copiers will work.

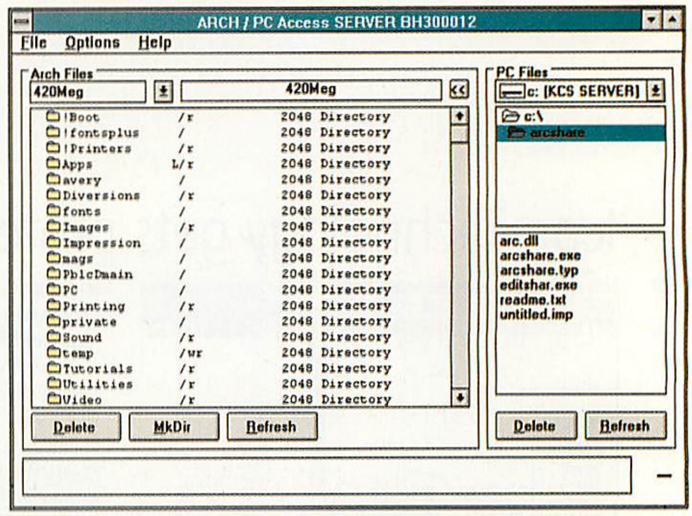
Gordian Installer for hard discs works by using the hard disc itself as a dongle. Applications will only work if the security software recognises subtle hard disc attributes registered by the software. *Gordian Installer* is compatible with all legal Acorn RISC OS hard disc filing systems, including SyQuest removable discs and Magneto-Optical discs. Uninstallation of the software is easy, which enables protected applications to be moved to a different drive and re-protected, though only one protected drive is allowed per key-disc supplied.

Other *Gordian Installer* features include the ability to limit the number of authorised users on a network and protect CD-ROM software distribution.

Gordian Systems
Fax: +30 271 41355
E-mail: gsal@posidon.servicenet.ariadne-t.gr or gkapog@di.uoa.ariadne-t.gr

Arcshare™

Acorn to PC Networking Software



Its finally happened. A company has come up with a simple and inexpensive solution to an age old problem.

Getting access to files stored on a PC has always been a problem for Acorn computer owners. There has always been Floppy Disk transfers, but these are slow and limited to 1.44Mb. There has been several attempts to "Network" the two computers together but most attempts have been problematic and needed a great deal of extra hardware.

Arcshare is the latest program from KCS which allows any Acorn computer with an Access network card to talk to any PC with a network card & Windows.

Arcshare needs no extra hardware other than cheap network cards. Arcshare is very easy to use through its graphical interface and is, on average 40 times quicker than using a floppy disk, but with no file size limitation. Arcshare can even use CD Rom drives from a different machine.

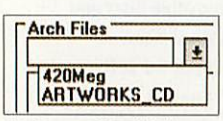
Available Now.



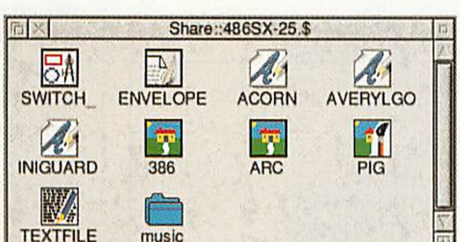
In the Main screen on Arcshare Client, both the Acorn and the PC directories are visible. Files can either be copied, or deleted, even new directories can be created on the Acorn from the PC. Arcshare has the advantage, that it can be run directly from the Windows Filemanager so that file manipulation is simple. Arcshare can run under a Windows for Workgroups network in conjunction with other PC's on the same network. There is no limit as to the amount of Acorns that can be seen from the PC on the Access network.

On the Acorn, the PC directories are designed to look just like any other Acorn directory. In fact, Arcshare makes the PC behave as if it were part of an Access network. Files can be copied from the PC directories to acorn directories in the normal manner. Files can even be copied from one PC to another PC via the Acorn.

It's time to join the PC and the Acorn on the same network. Call KCS now to find out more about Arcshare and networking Acorns to PC's.



CD Roms, Hard Drives & other Acorn Computers can be seen & used by the PC.



The PC Directory looks just like just another Acorn Directory, thanks to Automatic, remote Filetyping.



Ideal for School Networks!

Arcshare Client v1.4

- Allows file transfers between Acorn and PC Computers.
- No Filesize Limitation.
- Automatic Filetyping when the Acorn receives a file so that the file is ready to be loaded into an application straight away.
- Automatic File Extensions added when a file is transferred from the Acorn to the PC so that the file can be loaded into a program straight away.
- Easy to Use Graphic Interface.
- No "Dedicated Server" Computer required.
- Connects directly to Acorn Access Network. Very easy to setup and install.
- Works with Windows 3.1, 3.11, Windows 95 & Windows NT

Arcshare Server v1.4

- Has ALL the Functions of Arcshare Client v1.4 but with the following additional extras.
- Allows transfers of files from the Acorn.
- When a Window is open displaying a PC directory, all the files are filetyped even though they are stored on the PC!
- Files can even be copied from PC to PC from the Acorn.
- Any Acorn on the Network can access the PC.
- Makes the PC system look like another Acorn Access system.
- Files can be loaded into applications directly from the PC.

Prices

Arcshare Client v1.4
£79.00 & Vat

Arcshare Server v1.4
£99.00 & Vat

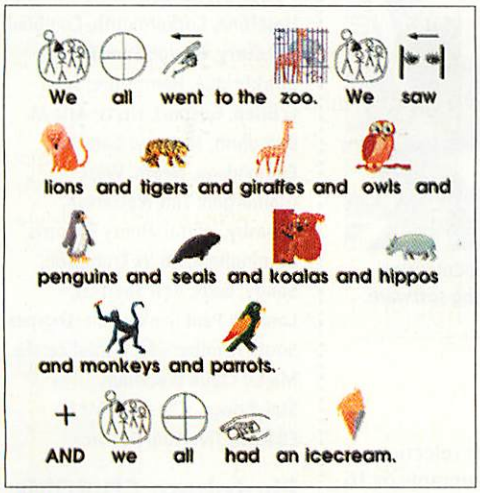
Available from:

Kimberley Computer Services. 73 Chapel Street, Leigh, Lancashire, WN7 2DA. Tel - 01942 677777. Fax 01942 672300. email - Info@kcsprem.demon.co.uk

& other reputable Acorn Dealers

Widgit Writing Set

WIDGIT Software has announced that its *Writing Set* package is now available with *Writing with Symbols*, *Symbols to Sentences* and *GridMaker*. The package is designed to develop writing skills and is suitable for mainstream pupils as well as those with learning disabilities. The secret to the success of the package is its use of symbols, words and graphics. Sentences are literally made up from sequences of easily-understood symbols. A supplied symbol pack includes around 1700 symbols and an optional extra, called *The Picture Collection*, contains 500 full colour pictures.



Widgit Software lets pupils learn by *Writing with Symbols.*

Symbols to Sentences follows on from *Writing with Symbols* and is aimed at key stage 1 and 2 pupils to help develop basic writing skills ranging from letter recognition, spelling and writing within a context. The package is compatible with various input devices, including Crick Computing's *Clicker Plus*, concept keyboards, and so on. *GridMaker* is a utility for designing paper overlays which can be printed in colour.

The complete *Writing with Symbols* package including resource packs, is £60 + VAT, *Symbols to Sentences* is £40 + VAT and *The Picture Collection* is £25 + VAT. *GridMaker* is priced £25 + VAT.

Widgit Software
Tel: (01926) 885303
Fax: (01926) 885293

VTi/Sony CD competition

THANKS for all your entries to the VTi/Sony CD-ROM drive competition in the April issue. The answers to the questions were: CCS, Photo CD and *ArtWorks*. The tie-breaker was to complete the sentence 'I want a VTi/Sony CD-ROM drive for my computer because...', and the four lucky winners are:

Tim Boughton of Harrogate, with: 'A slick and speedy Sony drive, will bring my new Acorn alive; with 500 megabytes of AU disc, I knew the PC was worth the RISC.' Tim is pictured here receiving his drive from Andrew Voyle of VTi at the *Acorn User* show.



Tim Broughton receives his CD-ROM drive from Andrew Foyle of VTi

Chris Penfold of Macclesfield, with: 'Discs go in, going round and round, giving amazing graphics and 16-bit sound; data squeezed into such a small space gives me and my Acorn a smiley face.'

A Waterhouse of Otley, with: 'The Blue Peter one I made earlier out of an old shoe box and sticky-backed plastic doesn't work too well...'

Giles Morant of Warminster, with: 'I need to become a better Acorn user, before I become a used nut!'

Other tie-breakers worth mentioning are: Keith McKillop with 'I want a ROM with a view'; Andrew Ratcliffe with 'The cover CD-ROM sounds horrible on my hi-fi'; and finally, Julian Brown with 'I am from Mars, and we desperately need CD-ROM drives to save us from extinction.' Errr...

Getting wise on plants

SHERSTON Software has launched *Plantwise*, an animated database dedicated to the plant kingdom and aimed at 9-14 year olds. Pictorial menus are used by pupils to navigate the database and find out the intricacies of plant life. The *Plantwise* database looks at plant structures, reproduction, growing conditions, daily and seasonal cyclical effects, and plant classification. The package can also be used as part of experimental projects, with built in sections covering the effects of various plant functions like conditions for germination, tropism, photosynthesis, etc. The software is supplied with reference cards and a schematic diagram of the database. *Plantwise* is £44.95 + VAT.

Sherston Software
Tel: (01666) 840433
Fax: (01666) 840048

Analogue interface for PC sticks

Magnetic Image has launched Falcon Analogue, an analogue joystick interface designed for use with any popular PC joysticks. At the *Acorn User* Spring Show in Harrogate, Magnetic Image persuaded Games Master's Dominic Diamond to try the new interface out using a Super Warrior PC joystick playing Fednet's *Star Fighter 3000*, with suitably favourable comments resulting. Bad Influence star Violet Berlin told Magnetic Image that the interface was also good for switched games. The Falcon Analogue interface, without a joystick, is priced £39.95 inc. VAT.

Magnetic Image
Tel: (01376) 500590

Acorn kit stars in Science Museum feature

A new exhibition at the Science Museum in London has been opened by Sir David Puttnam to explore the so-called *Information Superhighway*. Sponsored by Nuclear Electric, Oracle and BT, the exhibition includes a focus on Acorn's Online Media interactive multimedia technology and a section in the Internet which is supported by three Acorn Risc PCs. The exhibition runs until 3 September and is open between 10am and 6pm seven days a week – adult admission is £5, with discounts available for pensioners and registered disabled. Later in the year the exhibition will tour the country, starting with Manchester.

Software of Biblical proportions

ExpLAN computers in Tavistock, Devon, has produced a software version of the King James Bible. Powerful text searching is included, as are graphical illustrations and maps. Notes can be added to pages, which can be exported in *Impression* format.

ExpLAN
Tel: (01822) 613868
Fax: (01822) 610868

Banner software colour printer bundle

INTEGREX Systems is giving away a banner printing software utility, which Integrex says is worth £50, with every Integrex Colourjet Classic bubble inkjet printer. Priced £249 + VAT, the 300dpi Colourjet Classic comes with Acorn printer drivers and can emulate the Colourjet 132 model and also an HP Deskjet 500C. The printer has a paper roll holder for use when printing large sideways banners.

At the *Acorn User* Spring Show in Harrogate, Integrex also showed its new Colourjet Master 300dpi colour printer, which has a 150-page built-in sheet feeder and 600x300dpi mono printing capability. The Colourjet Master is £259 inc VAT.

Integrex Systems Limited
Tel: (01283) 550880
Fax: (01283) 552028

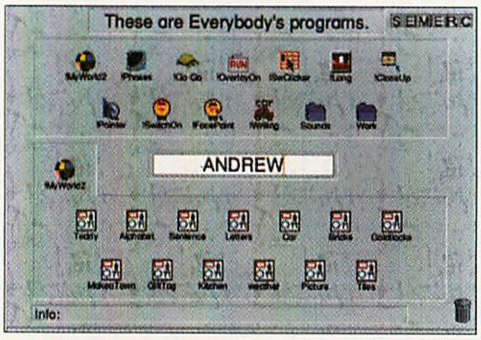


Free with the Integrex Colourjet Classic – banner printing software.

A new Front_End from SEMERC

A NEW software package from Northwest SEMERC called *Front_End* has been launched to provide easier, personalised access to Acorn programs and files. *Front_End* was produced to tackle the problem faced by anyone who has used a network with plenty of users, files and directories – which can be confusing. *Front_End* allows up to 70 people to access a selection of programs on a network. Up to 16 programs or 16 files relating to each program can be configured to be accessible by nominated users. In other words, when you log into the network, you are only presented with files which relate to you – as set by whoever is in charge of the network.

A password opens the door for a user into a personalised view of the user's own files and programs, without any distraction from the many hundreds or thousands of other files which will also be present. The *Front_End* display is split into two sections, universally accessible files and programs, plus a user's individually allocated files and programs. Select a program and all associated files will be displayed in the lower window. Teachers have a drag and drop facility for setting up individual pupil access privileges as required. *Front_End* is priced £25 + VAT for a single user licence.



Individual or group users can now have personalised entry to Acorn programs and files.

Northwest SEMERC
Tel: (0161) 6274469

Ireland's Acorn education centre

ACORN has opened its first Acorn in Education Centre (AEC) in Ireland. The Good Shepherd national School in Churchtown, Dublin, has been appointed to do the job. The new AEC was formally opened by Ireland's minister for commerce science and technology, Pat Rabbitte, and Acorn's managing director, Sam Wauchope, on 15 May.

Mr Rabbitte commented: 'It is important and valuable for primary school pupils to receive a good introduction to the use of technology as a learning resource and as a way of accessing and manipulating information and knowledge.' Sam Wauchope underlined the Acorn value in the new AEC: 'Acorn understands the importance of good IT support for teachers. We are firmly committed to delivering this through investing in AECs like the Good Shepherd School and will continue to develop our AEC network in order to provide the appropriate educational IT infrastructure.'

Three key services will be on offer from the Good Shepherd AEC. Dublin area schools will be able to use the facility for training, as a helpline and for after-hours hands-on use of the latest Acorn educational software and hardware. At the Good Shepherd AEC, one of the best-equipped primary schools in Ireland, you will find 22 networked Acorn computers and portables, plus a large selection of shared CD-ROM drives and printers. The first AEC in Ireland brings the world wide total for Acorn to 65, with others in Australia and New Zealand.

Game On! competition

The following lucky punters each win a copy of The ARM Club's *Game On!* for correctly identifying the games *Flashback, Gods, Speedball 2* and *Sensible Soccer:* P J Sturdy, London; Chris Heseltine, Cockermouth, Cumbria; S H Curry, Bristol; Tom Thorne, Stockbridge, Hampshire; Sean O'Brien, Gosport, Herts; Atle M Baardholt, Norway; Gareth Edmondson, Neath, West Glamorgan; Tim Watterton, Greasby, Wirral; Henry F Morris, Birmingham; Mr W Trompson, Sandy, Beds; Ken Sherratt, London; Paul Sankey, Cleethorpes, South Humberside; Daniel Zerafa, Malta; Claire Blackham, Stalybridge, Cheshire; Mr R Ellacott, Tiverton, Devon.

Photobase CD-ROMs

A total of around 15,000 history images will soon be available in the form of three Longman Logotron CD-ROMs. *Photobase Decades: The 1920s* and *Photobase Decades: The 1940s* are available now, with *Photobase: The Victorians* soon to be released. Longman Logotron has sourced the images from the Hulton Deutsche picture library.

Each *Photobase* CD is £49 + VAT, which includes site licence.

Longman Logotron
Tel: (01223) 425558

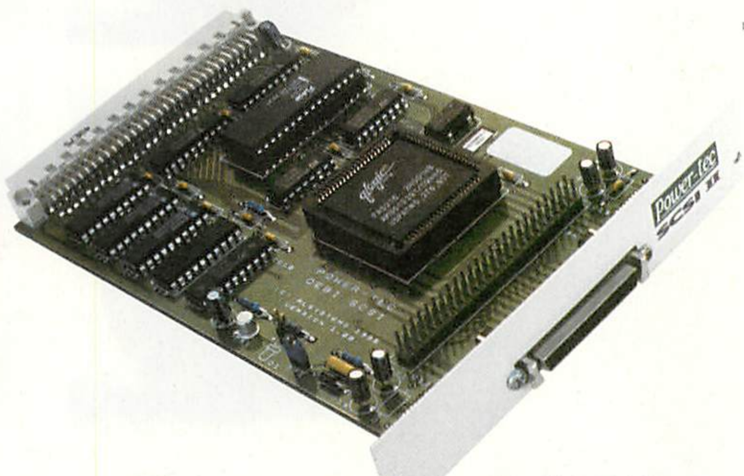
Risc PC 16-bit sound card

HCCS has launched Tidalwave 16, a 16-bit sound card for the Risc PC. Functionally equivalent to the Acorn 16-bit sound card, the HCCS version differs in that its maximum frequency is 44.1Khz and the Risc PC's internal 8-bit sound system is automatically switched out. A version of the card is available which is capable of mixing CD audio and computer-generated audio, all into a single set of speakers. The standard card is priced £49 and the mixer card £65. Some early Risc PCs may need a board modification.

HCCS

Tel: 0191-487 0760
Fax: 0191-491 0431

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With the growing range of CD ROM drives, hard discs, and scanners available as SCSI devices, equipping your Acorn computer to harness the raw power of multimedia through the industry standard of SCSI allows the greatest long term flexibility. Designed to offer the highest data tranfer rates of the Power-tec range together with SCSI 2 compatibility the new ***Power-tec SCSI 2 Card*** offers leading edge technology at an affordable price.

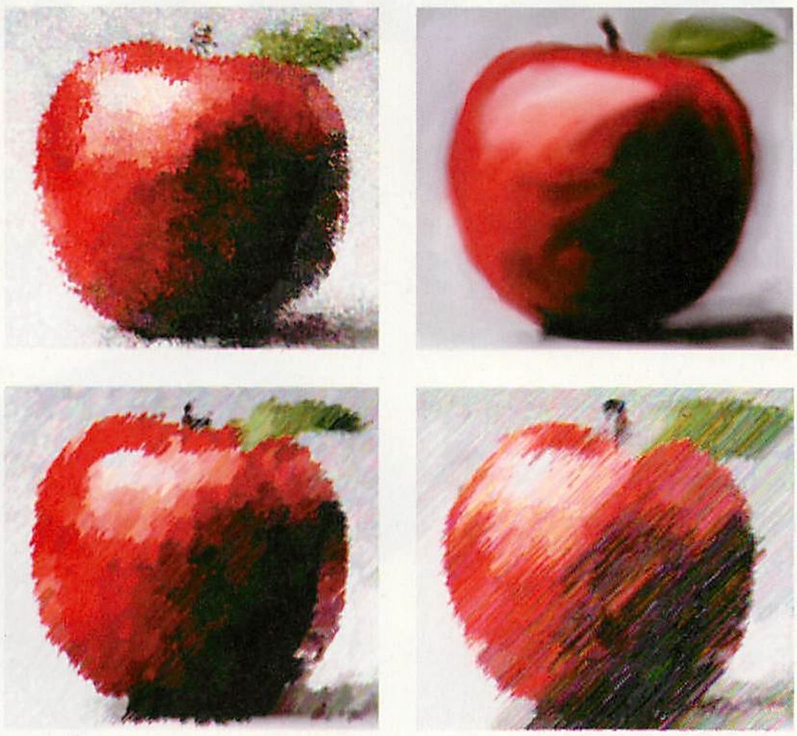
Power-tec
SCSI II

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PRO ARTISAN

24

UNLEASH THE ARTISTIC POTENTIAL OF THE Acorn Risc PC



ProArtisan 24 is the latest development in the hugely successful Artisan series. Designed specifically for the Acorn Risc PC, ProArtisan 24 exploits the enormous artistic potential offered by allowing the use of 16.7 million colours for image creation and display.

This means that the computerised tools provided, such as chalk, water colours and pastels, mimic their natural counterparts very closely. Add to this ability to load Photo CD images in full 24 Bit colour and what you have is an exceptional painting package for your Risc PC, with the added benefits of many powerful image processing tools.

A fact pack is available which includes a demo version of the software.

Acorn RISC PC

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Graphics

Compo considered

THERE has been much expectation over the arrival of Clares' *Composition*, yet having beta-tested the product over the past twelve months and having finally seen the first release version, from the serious graphics user's point of view it has a long way to go.

To explain what kind of an application *Composition* (affectionately known as *Compo*) is, one must understand the concept of layering. Layering is a technique employed by programs like *Photoshop*, *Picture Publisher* and other advanced bitmap packages, and increasingly by vector packages too, which allows the user to manipulate multiple bitmap canvasses – layers – and have them interact with other layers without executing changes to each layer.

This means that a layer containing text, for instance, which has been given an opacity of 50 per cent maximum will allow 50 per cent of the bitmap in a background layer to be viewed, but the text layer can be moved around like an object with defined attributes, and the pixel colour values for the background layer are then re-rendered according to these attributes, on the fly. On the plus side, *Composition* does this re-rendering very efficiently, can support deep sprites and translates *Draw* and *ArtWorks* files into sprites utilising Computer Concepts' superb vector graphic anti-aliasing routines. However, there are a number of disappointing areas which hopefully future development will address and improve. As the power of the program relates to the way in which bitmaps are treated like objects, the program is let down by some of the effects windows like the one for rotation, which relies on data entry or tiresome mouse button pushing to achieve the desired affect. 24-bit sprites with 8-bit masks are not handled correctly and masking in itself is a tricky business in the package, though OLE support is provided. The scope of this column does not allow a full description of my first impressions; the full lowdown on its failings and massive potential will be given in future issues.



Layering in *Composition* allows bitmaps to be manipulated as never before on the Acorn, but features are still lacking.

Clares Micro Supplies
Tel: (01606) 48511
Fax: (01606) 48512

Spacetech spec

Spacetech has announced the full range of features which are currently being implemented into *Photodesk*, which mean that version two should be regarded as a radically changed package. There will be full support for multi-channel capabilities, from single alpha or colour channels to RGB/CMYK (layered) channels, and a new virtual memory system with MEMC bitmap remapping for fast, problem-free large file handling.

New filters include: displacement, unsharp mask, shadow mapping, improved guassian blur, fully-controlled RGB and CMYK colour balance, gaussian noise, brush-on saturation shift, new defocussing and outline tracing. There is also CMYK output calibration, dot gain control, under colour removal and other professional controls. For the artist there will be soft-edged paint brushing, and improved anti-aliasing all round.

To round it off, *Photodesk* will have a fractal texture and gradient generator with 24-bit Mandelbrot and Julia set navigator. Full layering capabilities will arrive by version 2.1, which could spell trouble for *Compostion* which lacks such extensive creative features as *Photodesk* already boasts.

Spacetech
Tel: (01305) 822753

Pic of the month

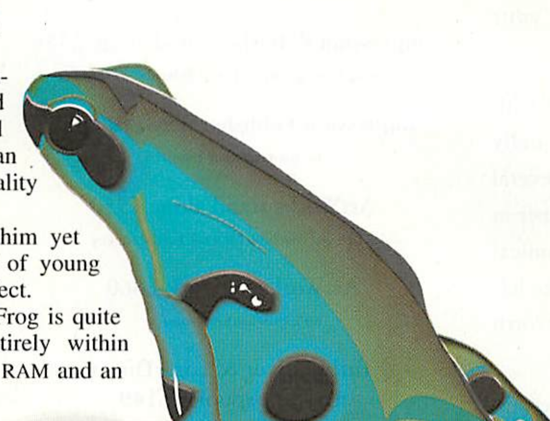
MARTIN Pedrick has once again demonstrated that in the hands of a skilled draughtsman the seemingly aged and under-developed *ArtWorks* package can produce nothing short of professional quality graphics.

Martin is 15-years old, which makes him yet another addition to the growing number of young artists using the Acorn platform to great effect.

Martin's drawing of the Arrow Poison Frog is quite aptly called *Frog*, and was created entirely within *ArtWorks* running on an A4000 with 2Mb RAM and an AKF18 monitor.

The piece is most commendable for its subtle use of blends, creating seamless highlights and thereby evoking very realistic three dimensional effects. £20 wings its way to Martin, and remember, if you send in your pic, next time it could be you.

On a separate issue, please could Chris Hutchinson, winner of the Pic of the Month in March 1995, get in touch with us, as we have (grovel) lost his address.



Question corner

I have been frequently asked what the graphics performance of the next generation of Acorn portables would be. To be honest, Acorn isn't saying, and I don't know when such information will become available.

However, the state of the art at the moment would suggest that 1 or 2Mb of VRAM would be supported, and – at a price – the colour screens that would be offered would be able to utilise the VRAM up to 1024x768 pixels in 16-bit colour. Whether Acorn does this is, of course, anyone's guess.

Contacting me

You can contact the Graphics page by writing to me, Jack Kreindler, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: jack@acornusr.demon.co.uk.

THE FAR SITED OPTION!



If your site has more than three machines then a site licence might be your best option.

Site licences were originally designed with schools in mind, but they work equally well for any organisation that has several machines on one site. The exact number at which a site licence becomes economical varies with the product, but if your site has more than three machines then it's worth investigating further.

Impression Publisher, Impression Style, TurboDrivers and ArtWorks are the most popular licences. Impression Publisher and ArtWorks come in two forms — for use on a network or for use with stand alone machines. Network licences are AUN compatible and can run over Econet, Ethernet or Nexus virtual econet networks.

Impression Publisher stand alone £550
+ £15 per machines for each hardware key

Impression Publisher network £660
no hardware key required

ArtWorks stand alone £550
+£15 per machine for each hardware key

ArtWorks network £660
no hardware key required

TurboDriver & LaserDirect network spooler £149

Impression Style £440

Add VAT at 17.5% to all prices. We have site licence arrangements for most other software products. In some cases special arrangements are possible for Style in Primary schools. Please ask for further details.

The licence fee includes one complete package with manuals and hardware keys where necessary. The purchase price of a single copy of Impression or ArtWorks, if one is already owned and registered, can be offset against the fee. The licence covers up to 20 machines, but for the larger sites additional units of 10 can be bought at a later date

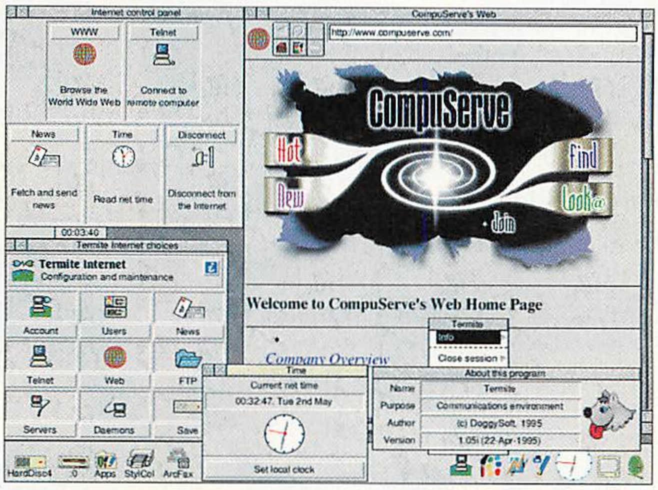
Think of it this way; if your site has 20 machines, an Impression Publisher network licence works out at £33 per copy, when the RRP is £169. We're sure you will agree that this pricing is attractive, which is why 4000+ sites have Computer Concepts licences.

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Comms

Surfing with Termite Internet



Web browsing using *Termite Internet*. Pages are becoming increasingly artistic, which improves the look of the page but has a high penalty in download time.

TERMITE *Internet* from DoggySoft has finally emerged as one of the first commercial Internet-access software packages for Acorn 32-bit RISC computers. Available either as an upgrade to existing *Termite* owner-users for about £30, or £79.95 (no VAT) for the complete package, *Termite Internet* seems to offer all the facilities you need to connect to the Internet resources.

I tried out the version shown here, a preliminary release with the Web browser, Telnet, News and Time functions implemented, and it worked well. Although I was using a V.34 Courier connecting to Demon Internet's bank of Energis lines fitted with V.34 modems, Web picture retrieval was still irritatingly slow.

This isn't so much a fault of *Termite*, but of the data bottleneck existing in such a connection, and brings home the financial folly of home Net surfing via modem. As Web Masters become more design-conscious their pages become more stylish, with more detailed pictures that are bigger but beautifully retouched to grab the reader's eye, all adding to the download time.

Termite Internet is very easy to set up using the *TermiteIP* configuration and maintenance application that holds data on your Internet account and newsgroup subscription preferences.

Getting on to the World Wide Web is simply a case of clicking on the directory entry of your local Internet service provider, and clicking on the Web icon to load in the Termite Home Page. From here you can jump into cyberspace by directly entering URLs you have noted from the newspapers and magazines, or gently paddle in the surf of one of the dozens of links already provided to interesting and educational Web sites around the world.

A nice original touch is the spinning hourglass world that shows your requested page being fetched – and your phone bill rising.

DoggySoft
Tel: (01494) 673222

FAQ – how do you use uuencoding?

THE Arcade BBS Internet E-mail Gateway has attracted over 400 users at the time of writing, and one of the frequently asked questions is: 'How can I send programs and data by e-mail?' This query often follows a failed attempt to do this by entering the data as if it were a text file into the BBS online message editor. The simple reason for failure is that raw data files contain characters that can completely confuse e-mail systems, so don't do it!

Data or program files must first be converted to a special format that only uses text characters, which are the 'printable' characters with ASCII values from 32 to 126 – the alphabet, numbers and punctuation characters. Non-printable characters below 32 and above 126 are those that cause all the problems.

Fortunately, there's a simple way to convert non-text data files to this special format called 'uucode', using David Pilling's archiver *Spark*. The conversion is very easy if you first create a *Spark* archive file of the data. If more than one file or a complete application is to be sent, a single file archive is essential anyway.

One of the 'actions' available with *Spark* when an archived file is selected, is 'uucode', which creates a new file having a text filetype perfectly capable of being sent as e-mail. Beware that there is a length limit on Arcade BBS messages of 399 lines, so your uuencoded file may well end up being too big to e-mail. Decoding at the other end is a simple matter of dropping the uuencoded file onto the *Spark* icon and saving the archive file that's re-generated.

Users of *TTFN* and the Internet Starter Kit can simply drop a non-text file (or archive) onto the *TTFN* iconbar icon, and drag the resulting uucoded file icon straight into the message being written. Other PD applications that operate in a similar way are available, such as *U2* or John Allen's *UUCoder*, which both codes and decodes for you.

Shack back

Many readers couldn't get through to Shack BBS, run at Birkenhead School, Merseyside, mentioned in the February issue. IT teacher Alan Davies tells me there were some initial software problems, but that Shack BBS is now fully up and running. Alan also has plans for dial-in access for pupils and staff from home into the school's AUN network. Shack BBS is probably the only Acorn BBS in the Wirral area, so give them another try.

Shack BBS
Tel: 0151-652 3353

Web helps dyslexics

Xavier Educational Software, based at the University College of Wales in Bangor, has opened a web site to showcase programs specifically designed for dyslexic children and adults. Dave Lane of XES explained that the website holds details of the available programs based on over 30 years work at the college, with screen-dumps, other news and info provided by the British Dyslexia Association.

The XES Web site URL
http://www.psych.bangor.ac.uk/deptpsych/xavier/xavier.html

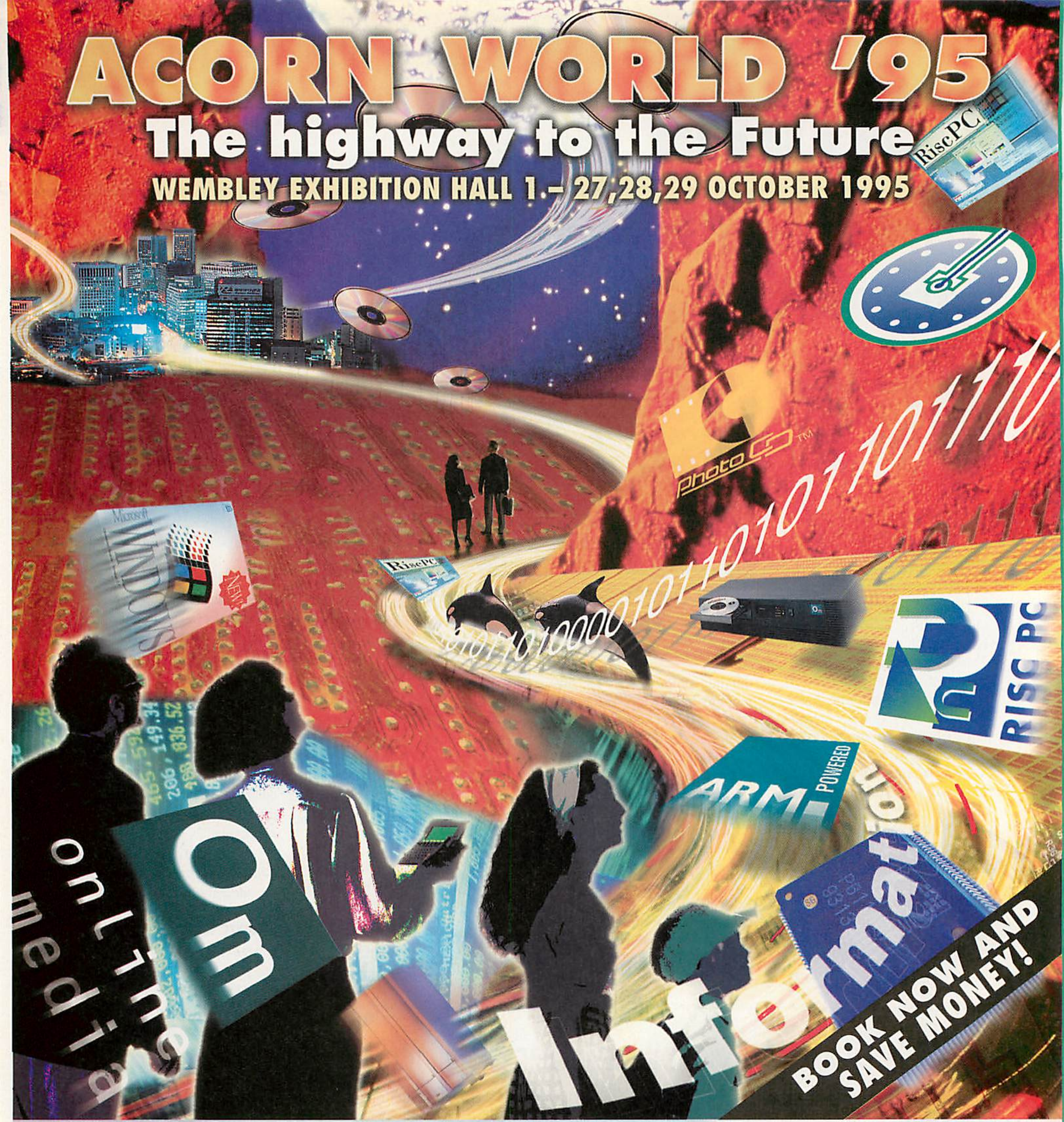
Magic Mage BBS

Lisa Burke is the Sysop of Mage International BBS, a new system based in Ilford, Essex. The BBS has a mission to educate and entertain, and to bring more females into the online community. Education is one of the main themes, with an emphasis on topics for schools and students. Lisa says that it's time for more women to add their flair and sparkle to cyberspace. Running *Archiboard* on an A5000 with a V.34 Sportster modem, Mage is online 24 hours.

MAGE International BBS
Modem: 0181-252 6112

Contacting me

You can contact the Comms page by writing to David Dade, Acorn User, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: DaviD@arcade.demon.co.uk, or mail #2 on Arcade BBS 0181-654 2212.



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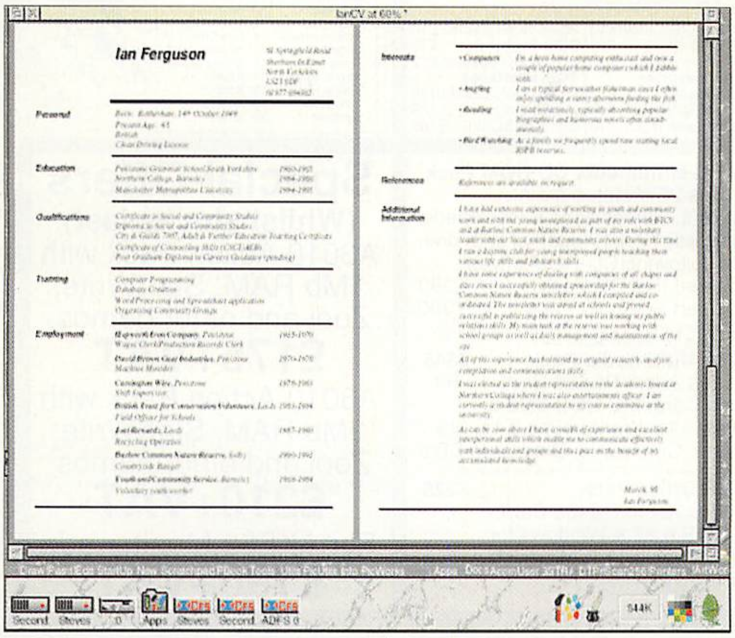
Access VISA

Windows screen shot ©Microsoft Corporation

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Acorn

Design by degrees



Good design is easy, or so they tell me. Even a humble CV can be made over and, after all, design is all about getting the right message across.

I MADE the mistake of hanging around the *Acorn User* stand at the spring show and several bods took the opportunity to pounce on me and demand some design tips with menaces.

I'm not a designer and would never claim to be one. They train mercilessly for years and eventually evolve a hunched appearance with a groping right claw that instinctively clutches for a mouse at moments of stress. However I know a man who is, and having spent far too much time in the company of talented artistic types even a novice like me picks up a few of the basics.

Trying to sum design up in a few minutes is next to impossible, so instead of trying to I thought I'd point you in the direction of a few good books that'll hopefully help you master your pages rather than the other way round.

I worked on the principle that they should be platform and software independent, should contain as many pictures and examples as possible and only as many long wordy bits as necessary.

The essence of good design is simplicity and experimentation. As long as you stick to a few basic rules you'll be fine and thanks to software like *Impression* you can tinker away at your designs for hours until it looks just right. You should never be afraid to experiment since you never know what it'll look like until you try.

Most of the books are very general and can be applied to everything from newsletters to wedding invitations. Both *The Makeover Book* and *The Non-Designers Design Book* give before and after examples of a variety of different things such as business stationary, reports, resumes and so on.

It's probably fair to say that like anything, good design takes time and can't really be rushed. You certainly have the power to produce stunning documents at your fingertips thanks to your Archimedes and a few juicy bits of software.

Rows and columns

AS well as release 3 of *TableMate*, that invaluable little table building gizmo, Dalriada Data Technology has added a diagram drawing tool to their portfolio. Both applications are OLE compliant and make use of tool bars. *TableMate* offers support for all manner of data tables (including graphics) and some simple spreadsheet facilities.

DiagramIt has predefined symbols for process diagrams and flowcharts and uses intelligent connecting lines that redraw/reconnect themselves when symbols are added or removed. *TableMate 3* is £32.50 and *DiagramIt* is £50.

Dalriada Data Technology
Tel: (01296) 53901

Recommended reading

The Non-Designers Design Book	Robin Williams	£12.95
The Makeover Book	Roger C Parker	£16.45
1 Minute Designer	Roger C Parker	£18.45
Looking Good in Print	Roger C Parker	£18.95
Newsletters from your Desktop	J & Doty Grossman	£18.95
Desktop Publisher Idea Book	Chuck Green	£20.49
The Print Shop Idea Book	S Kinkoph	£20.95

Most of these are available from good bookshops everywhere although *The Non-Designers Design Book* is available from Akalat publishing post free.

Akalat Publishing
Tel: (01582) 881614

Smart move

Smart DTP has just released version 2 of its *Publish Art* resource pack. Available in *ArtWorks* and *Draw* format, the clips are really designed to be manipulated for best effect rather than used as is.

This building block approach is ideal for anyone who hasn't the time or inclination to design their own artwork, like me for instance. It's a piece of cake to glue a unique design together from the components supplied and at £39 you can't go far wrong really.

Smart DTP
Tel: (01332) 842803

Snap happy

A wealth of new clipart appeared at the *Acorn User* Spring show. Hidden quietly away on the Longman Logotron stand was a complete collection of Photobase CDs which contain the excellent Hulton Deusch image library.

The discs are an absolute bargain at £49+VAT when you consider that magazines normally pay between £50 and £200 to use just one of the photographs.

The separate discs are 20s, 30s, 40s, 50s and 60s collections, *Landscapes*, *Victorians* and *Science*.

Longman Logotron
Tel: (01223) 425558

Makeover madness

As part of an ongoing feature the DTP column will be doing a quick makeover on a whole range of school and parish newsletters, business cards, year books and anything else we can get our hands on. If you're willing to let us dismember and reassemble your prized publication then please drop us a line.

Contacting me

You can contact the DTP page by writing to me, Steve Powell, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: steve@racoon.demon.co.uk.

Showroom open Mon-Sat 10-18.00 hrs (All prices exclude VAT) Carriage included except where indicated

CD-ROM

New Lower Prices

All the following CD-ROM drives are Multi-Session, PhotoCD, CD-DA compatible and include a cable & driver for CDFS 2.20

Internal Drives

4x Speed SCSI (Tray) 190ms	£210
The above CD-ROM drive can be used in tower mode!	
4.4x Speed SCSI (Tray) 150ms	£240
4.4x Speed SCSI (Caddy) 140ms	£289
Cumana CD300i IDE (Tray)	£199

External CD-ROM Drives

2x Speed SCSI (Tray) 275ms	£175
4x Speed SCSI (Tray) 190ms	£280
4.4x Speed SCSI (Tray) 150ms	£320
4.4x Speed SCSI (Caddy) 140ms	£379

SCSI cards

Morley uncached SCSI card	£130
Morley cached SCSI card	£169
Cumana SCSI II card	£169

Above are suitable for A300, A400, A3000 (Ext+£25), A540, A5000 and RiscPC.

Hard Discs

New Lower Prices

IDE Bare Drives		SCSI Bare Drives	
270Mb 14ms	£129	270Mb 12ms	£139
425Mb 14ms	£139	540Mb 12ms	£179
540Mb 12ms	£149	730Mb 12ms	£239
		1Gb 12ms	£Call

Above are 3½" bare drives only. Please add the relavent accessories from below. Drives are Connor or Quantum. ForA3000/A3010 hard discs see Hard Card section below.

Syquest Removable Hard Drives

IDE Bare Drives		SCSI Bare Drives	
270Mb Syquest	£259	105Mb Syquest	£189
		270Mb Syquest	£289
SCSI External Drives			
105Mb Syquest	£249	270Mb Syquest	£329
Syquest Cartridges			
105Mb Cartridge	£43	270Mb Cartridge	£49

Hard Disc Interfaces/Accessories

50-50C SCSI Cable	£10	25-50 SCSI Cable	£10
SCSI II-50 Cable	£25	SCSI Terminator	£10
5¼-3½ open adapt	£10	5¼-3½ HD adaptor	£12
IDE Accessories		**SCSI Interfaces**	
IDE interface	£79	Morley UnCached	£130
2nd Hard Drive Kit	£15	Morley Cached	£169
External case/PSU	£79	Cumana SCSI II	£169

TopicArt

Single disc clipart containing approx. 50 high quality draw format clip art images, each on a single subject. Comes with mono reference sheet. 12 subjects are available now. Please specify when ordering. Site licences are £16+VAT per disc, please ring for further details.

£8 + VAT per disc
Buy 4 TopicArt discs get one free

TopicArt catalogue now available. £1.50 Inc VAT & p+p (cheques only)

Subjects available (one disc per subject)

1 General	11 Tools
2 Transport	12 AnimalsGB
3 Costumes	13 Chem Signs
4 Entertainment	14 Fire/Emerg Sn
5 Bugs 2 Slugs	15 Hazard Signs
6 Road Signs	16 Safety Signs
7 Sports Equip	17 Xmas1
8 Sports Figures	18 Xmas2
9 Dinosaurs	19 Xmas3
10 Symbols	20 Xmas4



RISC PC

All RiscPC's include 1yr on-site maintenance. **Low finance available. The following prices do not apply to finance, ring for details.** We operate Acorn Assist for teachers & academics. **All RiscPC systems are now in stock.**

2MHD210 + AKF60	£1190
2MHD210 + AKF85	£1449
5MHD210 + AKF60	£1299
5MHD210 + AKF85	£1549
9MHD420 + AKF60	£1599
9MHD420 + AKF85	£1849
Add following for CD-ROM Drive	
Cumana CD300i (IDE)	£199
4x Speed SCSI (Tray)	£320
4.4x Speed SCSI (Tray)	£360

Above CD-ROM's include Morley uncached SCSI card. Add £39 for SCSI 2. Above prices only apply when purchased with a RiscPC.

RiscPC Multimedia CD-ROM Pack

Includes 25W stereo mains speakers, Hutchinsons Encyclopedia & RiscDisc (Vol.1) together with one of the following CD-ROM drives.

2X Speed IDE CD Pack	£280
4X Speed SCSI CD Pack	£390

The SCSI Pack includes a Morley Uncached SCSI Card. Add £40 extra for Cumana SCSI 2 Card.

PC486 Multimedia Pack £345

Includes Acorn PC486 Card, 16 Bit Sound Card, MS-DOS 6.22 & Windows for Workgroups 3.11, MS Encarta, Cinemania, Dinosaurs CD's

You must have a CD-ROM drive to use the above pack.

PC486 Office Pack £225

Includes Acorn PC486 Card, MS-DOS 6.22 & Windows for Workgroups 3.11 & Microsoft Works v3.0.

Special Offers (Whilst stocks last)

A3010 Action Pack with 1Mb RAM, StartWrite, Zool and other demos.
£175+VAT

A3010 Action Pack with 2Mb RAM, StartWrite, Zool and other demos.
£210+VAT

For AKF52 Monitor add
£190+VAT

QuickTile v1.02 £25+VAT



Up until now it has only been possible to print posters from Draw & Sprite files. Now with QuickTile you can create posters from ANY RISCOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references. RiscPC compatible. **Requires RISCOS 3.10 or later. Return Disc with SAE for upgrade. Upgrade from Tiler for £15+VAT.**

Mail Order - 0161-474 0778 (All prices exclude VAT) Carriage included except where indicated

A3010 Series

A3010 Action Pack 1Mb RAM	£175
A3010 Action Pack 2Mb RAM	£210
A3010 Learning Curve 2Mb RAM	£335
A3010 Early Years 2Mb RAM	£335
Add £190 to A3010's for AKF52 Monitor.	
Free Action Pack with A3010 LC/Early yrs.	

A3020/A4000 Series

A3020 2MFD/AKF52 MultiScan System	£615
A3020 2MHD60/AKF52 MultiScan Sys	£760
Special Limited Offer until End June.	
Free CD-ROM Drive with every A4000.	
A4000 2MHD210/AKF52 MultiScan Sys	£879
Add £55 for AKF50 Monitor (not A3010)	

Software Packs

Learning Curve Advance & PCSoft	**£42**
Early Years Talking StartWrite, Paint Pot	**£42**
Flossy the Frog, Mouse in Holland, etc.	
Home Office	**£85**
EasiWriter2, DataPower, Pipedream4, PCSoft	
Above are ONLY available with a system.	

RiscPC Upgrades

PC486 Card	£99
(The above price applies when purchased at same time as a RiscPC System)	
MS-DOS 6.22 & Windows 3.11	£79
Microsoft Encarta '95	£50
16 bit Sound Card (Acorn)	£60
2nd Slice Case Upgrade	£99
Acorn Access for RiscPC	£119

Memory Upgrades

RiscPC 4Mb SIMM RAM	£110
RiscPC 8Mb SIMM RAM	£225
RiscPC 16Mb SIMM RAM	£349
RiscPC 32Mb SIMM RAM	£730
Please ring to confirm prices on SIMMS before ordering since prices may vary up or down.	
1Mb VRAM (Acorn)	£129
2Mb VRAM (other)	£169
1 to 2Mb VRAM Upgrade (exchange)	£109
A3000 1-2Mb RAM	£55
A3000 2-4Mb RAM	£90
A3000 1-4Mb RAM	£129
A3010 1-2Mb RAM	£47
A3010 2-4Mb RAM	£105
A3010 1-4Mb RAM	£145
A3020/A4000 2-4Mb RAM	£92
A5000 2-4Mb RAM	£89
A5000 4-8Mb RAM	£259
A300/400 Series 4-8Mb RAM	£249

Monitors

Acorn AKF52 14" 0.39dp MultiScan	£250
Acorn AKF50 14" 0.28dp MultiScan	£300
Acorn AKF60 14" 0.28dp MultiScan	£320
Acorn AKF85 17" 0.28dp MultiScan	£530
Certain computers will require an adaptor	£12

RiscOS 3.1 Upgrades

A300/A440 Series (inc carrier board)	£97.88
A400/1, A3000, A540 Series	£75.75
Bulk Pack of ten upgrades	£339.00
Please add £4 (Inc VAT) carriage to RiscOS	
RiscOS 3 Carrier board for A300/A440	£22

Portable Computers

Pocket Book II (256k)			£227
Pocket Book II (512k)			£269
Psion 3a (256k)	£199	Psion 3a (512k)	£249
Psion 3a (1Mb)	£270	Psion 3a (2Mb)	£320
A-Link	£42	PC Link	£60
Parallel Link	£26	Mains Adaptor	£15
128k RAM SSD	£43	512k RAM SSD	£105
256k Flash SSD	£47	512k Flash SSD	£77
PB/Ps3 Games	£Call	PBII/Ps3a Games	£45
Acorn A4 Portable including PCSoft			£1200

Hardware Upgrades

24i16 Multimedia Card (512kb framestore)	£339
24i16 Multimedia Card (1Mb framestore)	£379
486sx25MHz Bare PC Card	£329
486SLC50MHz Bare PC Card	£389
486sx25MHz PC Card 4Mb RAM	£449
486SLC50MHz PC Card 4Mb RAM	£509
ARM3 (25MHz, Inc FPA socket)	£129
FPA Upgrade	£59
Colour Card Gold (CC)	£199
Eagle M2 Multimedia Card (CC)	£319
Joystick Interface (all m/c's)	£28
Logitech Mouse (Acorn)	£25
Midi Max Card (CC)	£68
Movie Magic (CC)	£249
Powerpad (dual) (Gamesware)	£33
Scart - 15pin Monitor/RGBTV cable	£12
Serial Upgrade for A3000 (Acorn)	£19
Stereo Speakers 25W (mains powered)	£35
TV Tuner with TeleText (CC)	£157
User/Midi Upgrade (A30x0/A4000)	£40

Modems

Sportster Modem Bundles

The modem bundles include a Sportster modem, cable, phone splitter, ArcTerm7 and ArcFAX.

14k4 Sportster Fax/Modem Bundle	£227
28k8 Sportster Fax/Modem Bundle	£315

Sportster Modems

The modem only include a Sportster modem and cable.

14k4 Sportster Fax/Modem Bundle	£155
28k8 Sportster Fax/Modem Bundle	£235

Scanners/Digitisers

ScanLight Video 256 (A5000/RiscPC)	£199
ScanLight Video 256 (A3000-A4000)	£205
Canon IX-4015 Colour SCSI Scanner	£610
Epson GT-8500 Colour SCSI Scanner	£549
Above includes !TWAIN/ImageMaster & Cable	
Vision24 Colour Digitiser	Int £96/Ext £109
Hi-Vision24 Digitiser A5000	Int £134/Ext £149

Hard Cards/Multi-Pods

A3010 HCCS Hard Disc Multi-Podule	
80Mb + User Port + 2 Slots	£225
160Mb + User Port + 2 Slots	£315
250Mb + User Port + 2 Slots	£475
A3000 Internal IDE Hardcards	
80Mb + User Port	£185
160Mb + User Port	£275
250Mb + User Port	£415

See also top of page for other hard discs
Please call for SCSI Hard Discs.

Printers (Include Cable)

Canon BJ-200EX (360dpi) **New!**	£200
Canon BJ-230 (360dpi)	£280
Canon BJC-600E Colour (360dpi) **New!**	£360
Canon BJC-4000 Colour (360dpi)	£250
Epson Stylus Colour Printer (720dpi)	£360
HP LaserJet 4L 4ppm (300dpi)	£429
HP LaserJet 5P 4ppm (600dpi) **New!**	£639
Add £40 to above printers for TurboDriver	

Printer Consumables

BJ-10 Ink Cartridge (BC-01)	£17
BJ-200 Ink Cartridge (BC-02)	£18
BJ-300 Ink Cartridge (BJI-642)	£16
BJ-600 Black Cartridge (BJI-201bk HiCap)	£10
BJ-600 Colour Cartridge (BJI-201)	£8
BJC-4000 Black Cartridge (BCI-21Bk)	£9
BJC-4000 Colour Cartridge (BCI-21C)	£17
BJC-4000 Fast Black Cartridge (BC-20)	£28
BJ-800 Black Cartridge (BJI-643)	£16
BJ-800 Colour Cartridge (BJI-643)	£20
DeskJet500 Mono/Colour Cartridge	£21/£23
EP-L Toner (LBP-4/HP LJIII)	£59
Epson Stylus Colour Black £16/Colour	£32
HP 92274A Toner (HP LJ4L)	£59
JP-150 Ink Cartridge (Acorn)	£22
Swift24 Mono/Colour Ribbon	£7/£15

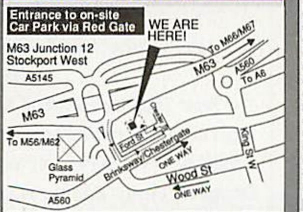
Books (No VAT)

Acorn RISCOS3 PRM's	£99.00
Add £7 (Inc VAT) carriage for PRM's	
Acorn 5th PRM covering RiscOS3.5	£29.00
Acorn BBC Basic VI Guide	£10.00
ArtWorks Made Easy (Dabs)	£14.95
Begin's Guide to WIMP Prog	£12.95
DTP on the Archimedes (Sigma)	£12.95
First steps in prog RiscOS (Sigma)	£14.95
Game Maker's Manual (Sigma)	£14.95
Add £2 Carr to above (£4 for Acorn books)	

Terms

EC residents add 17.5% VAT to all prices except books. Carriage free in UK (excluding remote areas) (except books), elsewhere at cost. Orders MUST be accompanied by a phone number. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Restocking fee on non-faulty returns. Official orders welcome from educational institutes, chq with order under £30. E&OE.

Where to Find Us



CD-ROM's

ArtWorks on CD (CC)	£135
Childrens Micropedia CD	£85
ClipArt CD 1 (CC)	£19
ClipArt CD 2 (CC)	£19
Encarta '95 for Windows	£Call
Granny's Garden CD	£28
Hutchinsons Encycloped'	£45
Replay Starter Kit (Acorn)	£35
RiscDisc Vol 1 CD	£17
Simon the Sorcerer CD	£36

Applications

Advance 2Mb (Acorn)	£95
Advantage (Longman)	£46
ArcFax (David Pilling)	£28
ArcTerm7 (Serial Port)	£58
ArtWorks (CC)	£125
AudioWorks (CC)	£45
C/C++ (Acorn) **NEW!**	£199
CADet (Minerva)	£99
Card Shop (Clares)	£19
Chameleon 2 (4Mation)	£33
Compl. Animator (IOTA)	£79
Compression (CC)	£29
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Easy C++ (Beebug)	£93
Eureka v3 (Longman)	£93
FireWorkz (Colton)	£89
FireWorkz Pro (Colton)	£139
Font FX (DataStore)	£10
Genesis Professional	£112
Glimpse (Sherston)	£10
Graphics Loaders (CC)	£42
Hard Disc Comp. (BB)	£42
Hatchback (4Mation)	£32
Hearsay II (Beebug)	£75
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Illusionist (Clares)	£40
Image Outliner (IOTA)	£46
Impression Publisher	£125
Impression Publisher+	£259
Impression Style (CC)	£76
InterTalk (Acorn)	£78
MacFS (CC)	£76
MacFS Lite (CC)	£45
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MasterFile III (Beebug)	£45
Morpheus (Oregan)	£28
Night Sky (Clares)	£63
Notate (Longman)	£54
Ovation (Beebug)	£79
PenDown Plus (Long)	£67
Personal Accounts (Apr)	£38
PhotoDesk (Spacetech)	£157
PhotoTouch (Oregan)	£68
Pin Point Junior (Long)	£25
Plot (Clares)	£63
Poster (4Mation)	£74
ProArtisan 2 (Clares)	£102
Prophet (Apricote)	£145
Recordz (Colton)	£97
Render Bender v2 (Cla.)	£41
Rephorm (Oak)	£45
Resultz (Colton)	£75

Applics (Contd)

Rhapsody (Clares) v2	£44
Rhapsody (Clares) v3	£74
S-Base2 Personal (Long)	£48
S-Base 2 Developer	£98
S-Base 2 Developer+	£147
Schema 2 (Clares)	£95
Serenade (Clares)	£75
ShapeFX (Datastore)	£10
Sibelius 6	£149
Sibelius 7	£789
Sleuth (Beebug)	£50
Sleuth2 (Beebug)	£93
Snippet (4Mation)	£32
SparkFS (Pilling)	£21
Speech 2! (Superior)	£22
Titler (Clares)	£79
Touch Type (IOTA)	£38
TurboDriver BJ (CC)	£42
TurboDriver HP (CC)	£42
TurboDriver Epson (CC)	£42
Tween (Ace)	£28
TypeStudio (Beebug)	£43
Vector (4Mation)	£75
Worra CAD (Oak)	£83
WordWorks (CC)	£36
Wordz (Colton)	£54

Games

Air Supremacy (Sup)	£13
Arcturus (Oregan)	£20
Axis (TBA)	£20
BattleChess (Krisalis)	£22
Birds of War (4D) 2Mb	£24
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Blood Sport (Matt Black)	£12
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Cannon Fodder (Krisalis)	£20
Carnage Inc (4D)	£18
Champions (Krisalis)	£22
-Includes Man Utd, J Khan	
- Squash, Wld Class	
- Leaderbrd & Boxing Mngr	
Chocks Compendium	£24
Chopper Force (4D)	£13
Chuck Rock (Krisalis)	£10
Crystal Maze (Sher)	£28
Cyber Chess (4D)	£24
Cygnus Collection	£20
- Incl Twin World, Iron Lord &	
- Tower of Babel	
Diggers (Millenium)	£22
Dreadnoughts (Turcan)	£26
Dune II (Eclipse)	£27
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Elite Gold Edition (Hyb)	£25
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E-Type Compend. (4D)	£13
E-Type 2 (4D)	£24
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Heimdall (Krisalis) 2Mb	£13
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James Pond 2 RoboCod	£20
Krisalis Collection	£22
-Includes, Mad Prof, Pipe'm,	
- Terramex & Revelation	
Lemmings (Krisalis)	£19
Lemmings for RiscPC	£22
Lemmings 2 Tribes 2Mb	£22
Lotus Turbo Chall2 (Kris)	£19
Magic Pockets (Reneg)	£20
Magnetoids (Oregan)	£22
Man United Europe (Kris)	£10
Oh No More Lemmings	£16
Pandora's Box (4D)	£13
Playitagain Sam 1/2/3	£19ea.
Populous (Krisalis)	£22
Real McCoy 2/3/4	£24ea.
Repton 3/4 (Superior)	£19ea.
Sally & Wally (Oregan)	£20
Saloon Cars Deluxe (4D)	£24
Scrabble (US Gold)	£21
Sensible Soccer (Reneg)	£20
Sim City (Krisalis)	£26
Sim City 2000 (RiscPC)	£30
Sim City 2000 (A5000)	£30
Simon the Sorcerer 2Mb	£31
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Speedball 2 (Krisalis)	£20
Spheres of Chaos (Matt)	£17
Spobbleoids	£20
Starfighter 3000 (Fednet)	£23
Stunt Racer 2000 (4D)	£24
Stunt Racer Xtra Tracks	£17
SWIV (Krisalis)	£10
Time Machine (4D)	£18
Virtual Golf (4D) 2Mb	£24
Virtual Golf Augusta Cse	£13
Wavelength (G/W)	£Call
Wolfenstein 3D (Powers)	£23

Educational

10/10 Software Series	
-Early Essentials (over 7)	£18
-English (6-16yrs)	£18
-French (8-16yrs)	£18
-Junior Essentials (5-11)	£18
-Maths (Number) (6-16)	£18
-Maths (Algebra) (6-16)	£18
-Maths (Statistics) (6-16)	£18
-Spelling (over 9)	£18
-Driving Test	£10
-Dinosaurs (all ages)	£10
Crystal Rain Forest (Sh)	£40
Darryl the Dragon (4M)	£18
Fun School 3	£17
(Spec age group ,<5, 5-7, >7)	
Fun School 4	£17
(Spec age group ,<5, 5-7, >7)	
Granny's Garden (4M)	£23
KidPix (ESM)	£37
Maths Circus (4Mation)	£25
Noddy's Playtime (JBn)	£20
Playdays (Gamesware)	£21
Rosie & Jim	
- Duck loses its Quack	£10
- Jim gets the sneezes	£10
Call for titles not listed	

Desktop Projects Ltd

Tel: 0161-474 0778

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Unit 2A, Heapriding Business Park, Ford St, **STOCKPORT**, Cheshire. SK3 0BT

Access VISA SWITCH

JUL 95

Public Domain

PD sources – a new selection

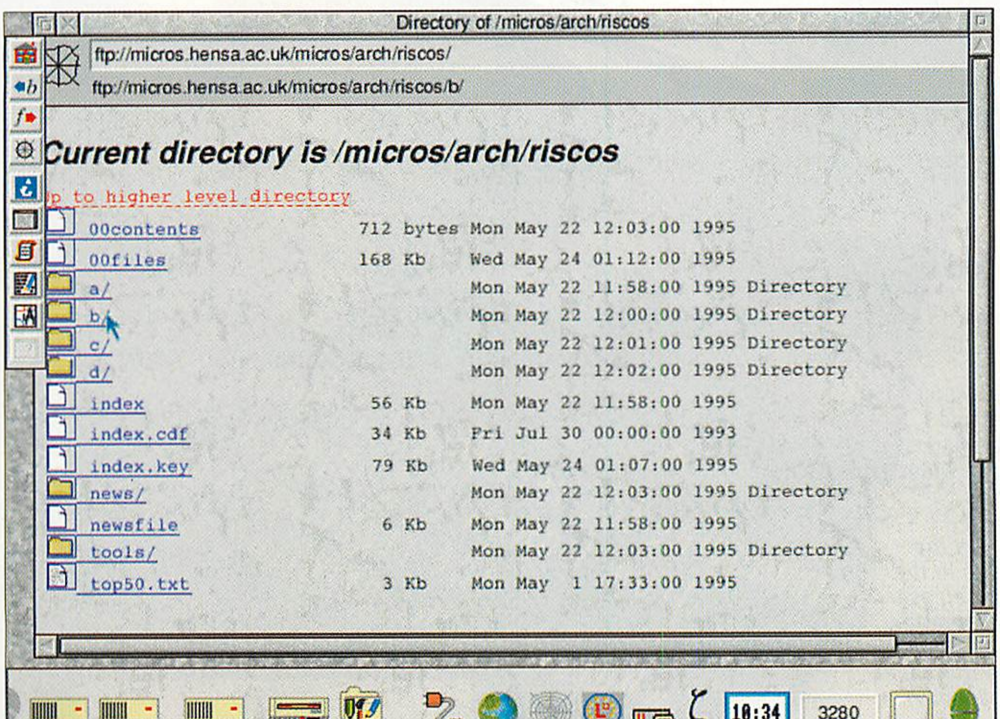
PD LIBRARIES have always been at the core of free software distribution, but electronic sites, both in terms of the Internet and the many Acorn bulletin boards, offer a massive selection of programs that often don't make it as far as any of the libraries.

Many Internet sites offer a good range of file-based resources that can be downloaded by ftp. Acorn areas can be found at several sites, but the best range can be found at the Lancaster-based Hensa archive, and the ftp site at the University of Stuttgart.

Hensa offers a good range of software, with excellent descriptive indexes that allow you to select the PD you want without lots of unnecessary downloads. Regular index updates show new files and updated programs, and these can be sent to you automatically when released, via e-mail. Hensa can be found at hensa.micros.ac.uk, and, as access to this may be restricted to non-academic users, it is mirrored at ftp.demon.co.uk/pub/mirrors/hensa.

The Stuttgart server is also well worth a look, and usually contains the hottest German releases long before they make it to the UK. Access from Britain has been very slow recently, but fortunately, the site has been mirrored at the Imperial College London. Ftp access direct to Stuttgart is at ftp.uni-stuttgart.de and is mirrored at src.doc.ic.ac.uk. Although the Internet can be a useful PD source, I've found the various Acorn Bulletin Boards to be a more personal and interesting way to get hold of the programs you want, as well as allowing the user to put something back. This is definitely more the domain of the Comms page, but from now on I'll be quoting BBS codes for the software I review, as well as the usual PD library codes. The Arcade BBS is on 0181-654 2212 and the Digital Databank is on (01707) 323531.

That's just a brief resumé of some of the many electronic sources of Acorn PD, but there's another important dimension that must be considered. The public domain is a resource of free software that has been created by individuals who have placed their software into circulation. It is only maintained by their efforts, so it should not be forgotten that this is a two-way process. There are many ways to put something back into the PD scene and the best one is to get out there and write some software of your own. But you don't have to be a coder to help out. Distribution is very important, so next time you make a download from a net site, or order some discs from a library, why not send some PD back in return? Remember that uploading new programs to your favourite BBS is just as important as downloading.



There is a wealth of PD on the Internet, and on the various bulletin boards around the country, if you know where to look.

PD libraries

In conjunction with the special 'Sources of PD' feature opposite, a selection of old and new libraries that deserve a mention are described below. If you run a library and would like to see it covered on the PD page, please get in touch at the usual address.

First up is a service being run by the Christian Acorn Users Group, which will provide a range of Christian resources, programs and clip art. The group is keen to accumulate a range of software, and invites readers to send any contributions to: Christian Acorn Users Group, 60 Barcheston Road, Knowle, Solihull, West Midlands B93 9JT.

Another theme-based library is run by multimedia fan Paul Hooper. The Multimedia Swap Shop is a resource of 60 *Genesis* and *Magpie* applications totalling over 40 megabytes of data. Much of the material is of an educational content, and is ideal for school use. An application can be obtained by simply sending a disc and SSAE to Paul. Swapping new multimedia applications is welcomed, but not compulsory. For further information, send a blank disc and SSAE to : Multimedia Swap Shop, 11 Roachford Road, Martham, Great Yarmouth, Norfolk NR29 4RL.

Centurion PD is a new venture being set up by PD enthusiast Matthew Prowse. Matthew plans to run a multi-format library catering for Acorn, PC and Amiga public domain software. The library is expanding rapidly, but contributions of new software and swaps are welcomed. The catalogue disc can be obtained from: Centurion PD (MAJP), Craiglea, 30 Abercromby Road, Castle Douglas, Scotland DG7 1BA.

Contacting me

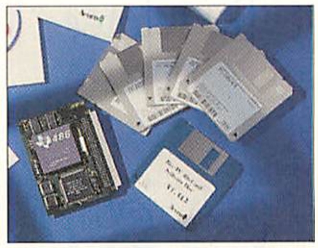
You can contact the PD page by writing to me, Paul Wheatley, at Acorn User, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, by e-mail to quantum@digibank.demon.co.uk or online on the Arcade BBS.

PC card? No thanks!

NEARLY every other page in *Acorn User* has talked about the PC card and its effects on existing home-grown software. However, why is it that *I've* not until now? Simple – I don't want a PC environment in my office.

Don't get me wrong – I can see the card's importance – but Acorn only sells it as fighting power. After all, no-one can now accuse Acorns of not complying to so-called industry standards. The reality is that most people, once they've used RISC OS, never want to use an inferior operating system.

I simply am not going to settle for anything less than RISC OS software, simply because it is not considered 'standard'. Nor should you.



The Acorn 486 PC card – business users should not be seduced into settling for a second-best system.

Database developments

AS REVEALED in last month's column, Iota Software is, later this year, releasing a fully-relational version of *DataPower*. When speaking to Mark Colton of Colton Software, he saw no reason why the same couldn't apply to *Recordz/Pro* as it is fully file-compatible with *DataPower* and uses the same 'engine.'

This is quite an interesting development as, at present, the two most popular database producers are still selling traditional 'flat file' products.

As for those databases which presently claim to be truly relational – *S-Base 2*, *Squirrel 2* and *Impact Pro* – all have a following. *S-Base* is excellent for those who wish to create database applications, and if I wanted to produce such things I would not hesitate to choose it. But for someone like me – someone who uses a database basically for names and addresses – I just can't quibble with *DataPower*. *Impact Pro*, often neglected because of its low price, is actually a good buy for that very reason.

I did hear the words '*Squirrel 3*' uttered from its programmers. Whether that will please all those who say it's not fully relational, only time can tell.

Prophet's revelation

APRICOTE Studios' new version of *Prophet* has now been released. While there is a review elsewhere in the magazine, here is a small résumé.

Prophet 2's interface is infinitely nicer than earlier versions. Drag-and-drop is now implemented, more than one object can be picked up before dropping, and direct import of *Payroll Manager* data has also been incorporated, which is very useful.

I would advise any version one users to upgrade immediately. At £35.25 inc VAT, it is astounding value (the price includes the new manual, binder and slip-case). However, to many users the RISC OS 3 requirement will prevent them. If, though, you wish to upgrade to the latest release of version one, this will be free (all Apricote's telephone support and minor upgrades are free of charge).

Apricote tells me that there are still about 650 *Account Book* users (remember that?) who haven't upgraded to *Prophet*. I doubt there's ever been a better time to take the leap to the newer package.

Apricote Studios
Tel/Fax: (01354) 680432

Graphics requests

LINDIS, disgusted that one of its packages (*CableNews 2*) could get a bad review, wants to implement many, if not all, of the requests on my wish list (which is nearly as large as this magazine).

As I have mentioned before, Acorn produces all its presentations using *CableNews*. This is quite pleasing as Lindis claims it wants to support its customers (i.e. Acorn). Hence, a totally new product called *CableNews Professional* – its specification has many features which I'm sure were read off an advert for *Harvard Spotlight*.

Lindis International
Tel: (01986) 785476

DiagramIt

ALTHOUGH I have ignored this relatively new package until now, *DiagramIt* is probably one of those luxuries business users should not be without. As its name suggests, it produces tree diagrams and is supposed to stop all that fiddling about in *Draw*.

At £50 (no VAT) it may seem slightly expensive. However, if it is likely to be used frequently it's probably worth the expense. *DiagramIt* can import *Draw*, sprite, *Equasor* and *Formulix* files and claims to use artificial intelligence.

Dalriada Data Technology
Tel: (01926) 53901

Cut, copy and paste

There are some very naughty programs around which do not support cross-program cut, copy and paste. Indeed, I don't think most people know it exists! All programs which have a clipboard should comply with a standard devised by Iota Software and later adopted by Acorn. This allows users to, say, cut some text in *Schema* and paste it in *Impression*. So Colton, et al, take note.

Tone dialling

One of the most useful features of *DataPower* is its unique tone-dialling feature. In other words, putting the phone near the computer's speaker, and with a simple keystroke the selected phone number is dialled. Why has no-one else thought of doing this?

Cheap software

In the March issue I recommended a budget non-multitasking spreadsheet from Contex Computing. It appears that the recommendation is now out of date because shortly after I wrote the column, iSV Products released *TableCalc* (reviewed *AU* May 1995). Also, I received e-mail from the makers of a product called *Calc*, a multi-tasking spreadsheet. A major new version is in the pipeline with enhanced graphing. Keep your eyes on the In Brief pages for more information.

Teletext and shares

If you want an easy way of entering data into your shares portfolio package, you need a teletext card. A number are available and are suitable for Silicon Vision's package, but if you're using *Shares* from Apricote Studios you will need *TVTuner*, available from Computer Concepts or Design IT.

Computer Concepts
Tel: (01442) 351000

Contacting me

If you have any hints and tips for any business-related products, or you have some news to share, why not drop me, Alexander Singleton, a line at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP, or by e-mail to: alex@acornusr.demon.co.uk.

Education

Red Tape ties up NC Disc

IN the April issue I mentioned that Rob Lytton had put all the National Curriculum Orders for all subjects on a single disc in the form of text files. Rob intended to make this freely available to anyone who wanted it, but unfortunately, he since discovered that it would infringe Crown Copyright and has sadly had to withdraw the offer. He has tried to buy a licence to distribute it but has been met by one obstacle after another, and has now decided to abandon the idea.

This is bureaucracy gone mad. Here we have an individual who has tried to make the infamous National Curriculum a little easier to cope with for his colleagues. Having typed in the Orders (which must have been tedious beyond belief) he was prepared to make it available to anyone who wanted it, without any profit for himself. The National Curriculum has been a fiasco from its introduction and if someone like Rob comes up with something to help teachers just a little, I would have thought that HMSO might have been grateful for the effort – especially in view of all the changes that have been made to the Orders since its introduction. As every school has copies of the Orders (on paper), you could argue that Rob wasn't even giving something they hadn't already got. Now, teachers up and down the country will presumably be duplicating the same task for use within their own schools. That doesn't sound like a good use of resources.

Rob Lytton

7 Helmsley Drive, West Park, Leeds LS16 5HY

Essential CD-ROM



Academy Television has released a demo CD-ROM which, in their own words, is a guided tour through their best-selling educational CD-ROMs. The disc is dual format (RISC OS and PC) and takes the user through each of their 18 discs, giving a clear explanation about each product. Schools considering purchasing a CD-ROM would be advised to look at this disc first.

The *Essential CD-ROM Selection* is free to schools, although individuals who express an interest may also be able to get a copy by phoning Academy Television on (0113) 2461528

Year four for Tesco and Acorn

THE Tesco/Acorn Computers for schools is now well under way for 1995, and schools will doubtless take the opportunity to buy some much needed hardware and software. The scheme is even more accessible to schools this year, with one voucher given for every £25 spent in Tesco (which is the same as last year), and many of the items offered being the same number of vouchers, or in some cases, less than last year. Of particular note is Acorn's Pocket Book II which is offered at 1200 vouchers (last year 1200 vouchers bought a Pocket Book I) and Acorn Access networking products. For Primary and Special Schools only, 'vouchers may be carried over to next year's scheme.' That statement presumably means that Acorn and Tesco have agreed to continue the scheme next year, though no announcement has been made.

Acorn video

Acorn's video *Making IT Work – A Video Guide for Primary Schools* is aimed primarily at primary school teachers and shows the benefits of multimedia in the classroom and of networking computers. Introduced by Judith Hann, the video shows four schools, two using multimedia and two extolling the virtues of networking, with a piece about purchasing using Acorn Access.

I would like to have reported that this video will be of enormous help to classroom teachers trying to manage multimedia and networks with little or no training or support. Unfortunately, I feel that in reality it is little more than an extended advert. We all know the benefits of multimedia and networking, and what teachers want is some concrete ideas of how to implement these technologies in the classroom.

I can't help thinking that Acorn are going to receive more criticism than praise for their efforts. While the video does an excellent job showing the technologies at work in the classroom, the case studies shown are all in suburban schools, populated in the main by white middle-class children.

Acorn Computers Ltd

Tel: (01223) 254254

Advice and Help for IT Teachers

In the same post as Acorn's video was a mail-shot from The Advisory Unit: Computers in Education which has launched a telephone/fax service for schools. The cost of the service starts at £250 per annum for the telephone facility which includes access to its extensive software library. The service can be extended to cover servicing and on-site visits and training days for specific themes.

The Advisory Unit : Computers in Education

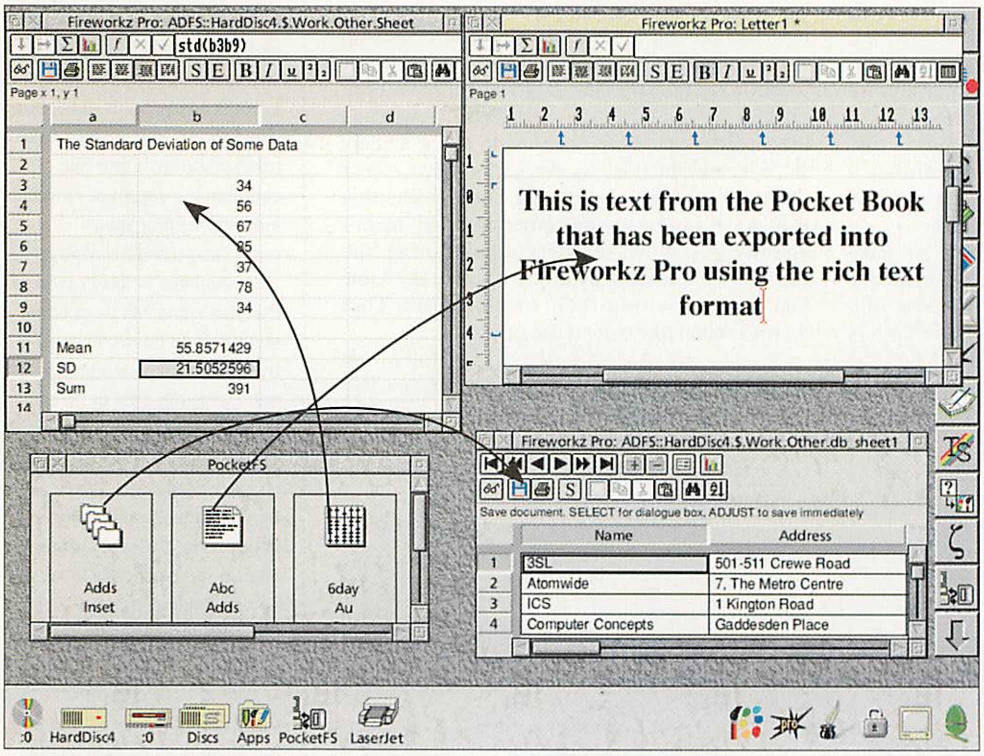
Tel: (01707) 266714

Contacting me

You can contact the Education page by writing to me, Geoff Preston at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to GPreston@arcade.demon.co.uk.

Portables

Family of three



Fireworkz Pro and *PocketFS* — an excellent combination.

COLTON Software's latest incarnation of its Z family, *Fireworkz Pro*, consists of a word processor, spreadsheet and database. These same three programs make up the majority of the Pocket Book's application suite, so how well do the two work together? The simple answer is: very well.

The word processor is able to import and export Rich Text Format (RTF) files, enabling documents to be thrown around the two platforms with ease. RTF allows styles, effects and layout information to be retained ensuring your documents remain identical on both platforms.

Fireworkz Pro's spreadsheet contains all the functions of its Pocket Book equivalent, and using the Lotus Wk1 or CSV format conversion is easy in both directions. Both spreadsheet packages contain roughly the same functions and with the Lotus Wk1 format most of the formulae are converted.

The database, like all good databases, is able to import and export CSV files. This makes data transfer between the Pocket Book and RISC OS easy. The ease of transfer and the database's excellent searching and sorting facilities go a long way to alleviating the inadequacies of the Pocket Book's database.

Overall, *Fireworkz Pro* makes an excellent addition to any Pocket Book owners RISC OS software collection. Data transfer is easy in both directions and with *Fireworkz Pro's* excellent system of integrating text and numbers, I certainly won't be in any hurry to send my review copy back.

Colton Software
Tel: (01223) 311881
Fax: (01223) 312010

A new lease of life

A4s are famous for one thing – battery failure at the exact moment you don't want it. Although I can't promise to prevent this occurring, the following is advice from Acorn on how to keep your battery working longer:

Recharge your battery in a cool area (not, however, below 10°C). This will ensure the battery takes full charge and helps maintain the battery life. It is now also recommended that you take the battery out of the computer when using it from the mains.

Re-conditioning the battery every two to three weeks will also help maintain the battery's life as well as enhancing its performance. To recondition the battery, first discharge it completely by leaving the computer switched on for an hour after it has finished operating. Then recharge the battery for seven to nine hours with the computer switched off. Remove the battery from the computer and allow it to cool. Reinstall the battery pack and charge it again until the indicator shows it to be fully charged.

I hope this information is of use – a full copy of Acorn's hint sheet can be found on *Acorn User*'s cover CD-ROM from April, in the Acorn.FTP.Docs directory.

The ins and outs of RTF

Computer Concepts has recently released a new Rich Text Format loader module – a vast improvement on the original, allowing *Impression* to handle RTF files with ease. Character and font mapping is easily set up using an excellent utility program, *CCMapper*. The loader will handle everything the Pocket Book can throw at it, and for Pocket Book users this loader is a must.

Also on the disc is an RTF saver which allows *Impression* to export text stories in this format. This enables text with styles and effects to be downloaded onto the Pocket Book. The saver module works very well and I encountered very few problems when using it.

My only niggle with the package is that at the time of writing, the loader would only work if you removed any other loaders that produce an alert box. This is due to a bug in *Impression* and although CC is trying to overcome the problem, I did feel a mention in the release notes wouldn't have gone amiss. The disc costs £29 + VAT; also included are loaders and savers for *Word Perfect 5.1*.

Computer Concepts
Tel: (01442) 351000

Portable printing

Canon has just released two new inkjets, the BJ-30 and the BJ-70. The BJ-30 is the replacement to the excellent BJ-10 while the BJ-70 is an all new colour notepad sized printer. Both would make ideal companions for either the Pocket Book or the A4 and I'll be taking a closer look at them next time. The BJ30 costs £199 + VAT while the BJ70 comes in at £299 + VAT.

Canon UK
Tel: (0500) 246246

Contacting me

You can contact the Portables column by writing to me, Mark Taylor at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by e-mail to: markt@acornusr.demon.co.uk.

Cover disc

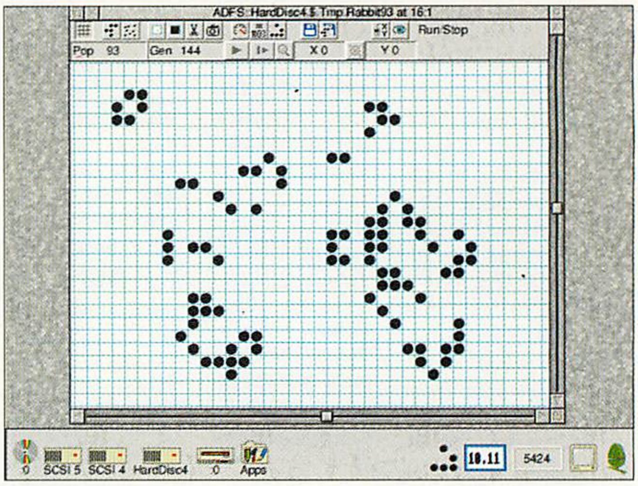
MacroLife

Author: Chris Taylor

MACROLIFE needs RISC OS 3.1 or later to run. It is a version of John Conway's Life game, originally explained in 1970, and popularised in *Scientific American* by Martin Gardener. The game, which involves a grid of 'cells' and rules which determine whether a given cell is alive or dead in the next generation, has always been a popular challenge for programmers. There were several versions on the BBC Micro, and a (very slow) one was provided as a programming example with Acorn's DDE.

Now, *Acorn User* brings you *MacroLife*, a Desktop version of Life with a host of facilities including saving and loading of cell patterns – known as Lifeforms – the ability to change and define your own death and survival rules, powerful editing tools and a massive grid. Not only that, but *MacroLife* runs at a startling speed, allowing you to watch your patterns develop and grow as though they really were alive. The rules of the 'game' and instructions for *MacroLife* are given in the article by the program's author, Chris Taylor, and *MacroLife* fully supports interactive help, making it easy to use.

MacroLife is Careware. If you enjoy using it, you should send £8 to Chris Taylor for a registered version. The registered version comes with a short manual, and removes the startup message which appears with the version on the cover disc. Half of the money you pay goes to Motivation, a registered charity dedicated to providing inexpensive wheelchairs to poorer countries.



Chris Taylor
Address (until September 1995):
7 Prideaux Place, London WC1X 9PP
(after September 1995): The Haven,
Buffler's Holt, nr Buckingham MK18 5DN

The Internet starter pack part four

Compiled by Alan Hassey

AS with part three, this archive contains further files needed for *TTFN* and *NewsBase* to run. Simply copy the contents of the archive to the same directory as parts one to three – the files will be copied to the correct places within the applications.

If you have already connected to the Internet using the first two parts, or if you have access to a BBS, then you can download complete copies of *NewsBase* and *TTFN*, and you will have the complete pack. The last part of the starter pack will be on next month's disc.

While the starter pack as presented on the *Acorn User* cover disc is fully workable, it is constantly being updated. Most of the programs that go to make up the pack have updated versions available for download; the appearance of *FreeNet* (see the Comms page last month) will make an especially large difference. You may wish to upgrade the versions of software you have obtained from the *Acorn User* disc. This needs just a little care to ensure that you do not overwrite important configuration information when you upgrade.

Often, settings can be restored simply by running *DemConfig* again, though this may not work if the internal structure of one of the programs has changed, (it has done in the past, but may have settled down now). It is always worth taking copies of the programs when upgrading, so if you do lose some configuration options you can remember what they were. Most people can remember their hostname, tag line and so on, but not everyone can remember the numbers in their IP address so easily.

Upgrading *SlipDial* and *TCPIP* should be straightforward. The configuration options for *NewsBase* and *TTFN* are mostly kept in the *NewsDir* directory, so are not overwritten when you upgrade. This does not apply to some of the options; in particular you should take care to reset the expiry details for your newsgroups or you may lose vital articles.

Disc problems?

OUR cover discs are tested thoroughly at every stage of production, but one or two faulty discs may slip through. If you suspect that you have a faulty disc, check whether it verifies by choosing 'Verify' from the menu produced from the floppy disc icon on the icon bar.

If the disc does *not* verify, then it is physically faulty and should be returned to TIB, TIB House, 11 Edward Street, Bradford, Yorkshire BD4 7BH, who will replace the disc free of charge. Note that this address has changed recently.

If it does verify and there is some other problem with the disc, contact the editorial office at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or telephone (01625) 878888.



While we do test all the programs on the cover disc, we are unable to try them on all possible combinations of computer, hardware and software. We try to support RISC OS 2, but much of the software written for the disc does require RISC OS 3.1 or above, as software writers are switching to the new operating system. Do let us know of any problems.

The *Acorn User* cover disc has been checked for viruses using *Killer* version 2.002 from Pineapple Software.

Regular features

Various authors

TO save on space, all the regular features on the cover disc are stored in the one archive, called *Regulars*. This contains the programs which go with the C tutorial, the winners of the schools competition, some programs by Mike Cook for the Run the RISC column, all the *INFO programs and some replacement tool icons for *Schema*, courtesy of Alex Singleton.

The C tutorial

In this month's C tutorial, Steve Mumford explains about file handling in C – specifically using random access files. The two programs, *RandomA* and *RandomB*, demonstrate reading from and writing to random access files.

Because the programs write to files, it is best to copy them out of the archive before running them – if you have the read-only version of *ArcFS* then you will certainly need to do this. Strictly speaking, only the *!RunMe* file needs to be copied; when this is run, it sets up a pointer to the directory it is in which is used by the other programs. Before running either program, ensure that *!RunMe* is in a directory or archive which can be written to, and run it. If you don't do this, the programs will give an error 'File could not be opened for writing.'

The source code for the programs is in the *c* directory in the archive, with the programs themselves in the root directory of the archive. The *o* directory is intentionally empty – your compiler will need it if you attempt to compile and link the source code.

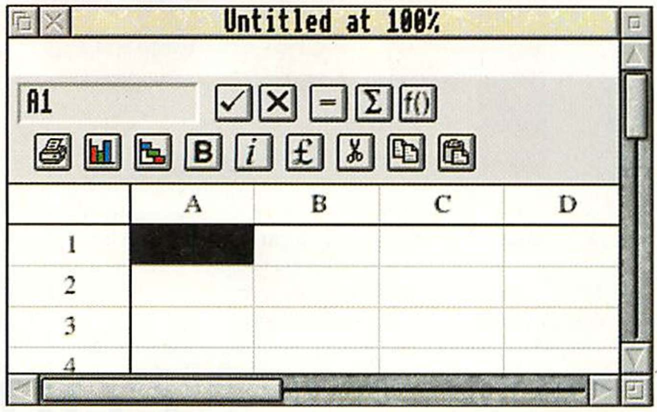
Competition winners

The three first prize winners in the schools' competition all have their entries in the education directory on the disc. The *CatA* winner – *Barny's Bugle* from St Barnabas's Shool – is in a *Draw* file, so should be readable by everyone. The other two entries – from Mark Landers of Eskdale School, Whitby and Paul Nicks of Sedgefield Community College – are in *Impression* format. Of these, the *CatB* winner was done in *Publisher*, so may not load into *Style* correctly.

Run the RISC

This directory contains three programs from Musberry Consultants, along with the *Mono_D* module – originally on the May 1995 disc – which allows users with pre-A5000 machines to use the software which is designed for machines with a bi-directional printer port. If you are using one of these earlier machines, you will need to load the *Mono_D* module for the other programs to run. *Steady3* will not run on pre-A5000 machines, as it relies on the extra data lines present on a bi-directional printer port.

The three programs are three stages in the development of a very bare version of the steady hand game in Mike Cook's hardware column. Expanding them further is left as an exercise for the reader. *Steady1* detects if the wire has been touched, *Steady2* also detects when the wire hoop has reached the end (the game has been completed), and *Steady3* adds code to detect when the wire hoop leaves the start.



Improve the look of your copy of *Schema* with Alex Singleton's new icons.

*INFO

The *StarInfo* directory contains files to go with the *INFO section of the magazine. They are individually described in much greater detail in that section of the magazine, which includes a compatibility table for RISC OS 2, 3.1 and 3.5. Note that a number of the programs in this section run in low-resolution screen modes for speed and compatibility with older machines, which may cause problems on non-Acorn monitors. On a RISC PC, these modes will be displayed in a 'letterbox' format, unless you have *Game One* from the ARM Club which has replacement monitor definition files.

Note that the *Publisher* and *Style* patches on the disc are not for the most recent versions of these programs, as we were unable to obtain up-to-date copies in time for the disc deadline. They will appear on next month's disc instead.

Schema icons

Acorn User's business editor, Alex Singleton, has created a set of replacement icons for *Schema's* tool bar. They are high-resolution only, and should be copied to the *!Schema.Menus* directory, replacing the *ribbon_s22* file which is already there. You will probably want to make a copy of the file before doing this, in the unlikely event that you prefer the original icons to Alex's set.

RISC OS 2 users

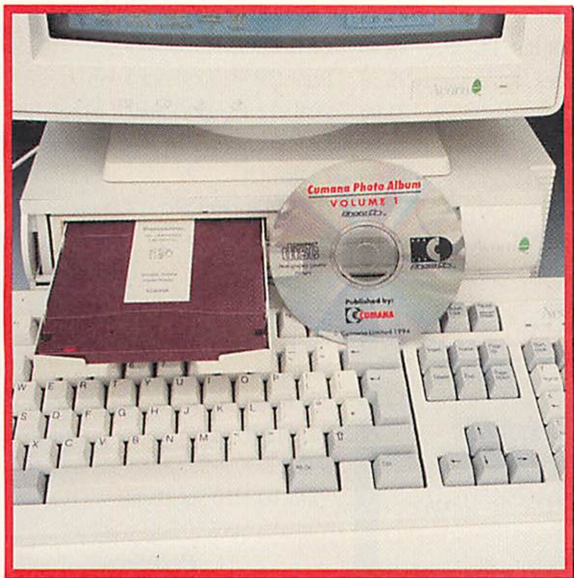
USERS who still have RISC OS 2 will have noticed that the menu system on the cover disc has become less automatic in the last few months. This is because we have performed a long-overdue upgrade on our version of *ArcFS*, and the latest version no longer supported automatic opening of archives on RISC OS 2 in the same way that the older one did.

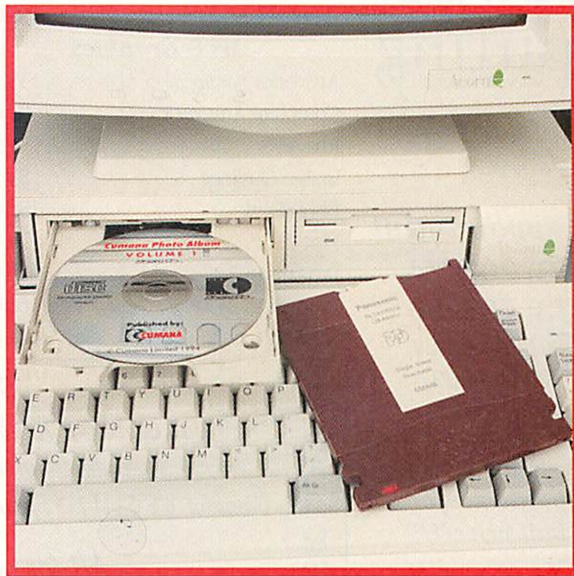
Happily, we have fixed this problem on the latest cover disc, which should now work on RISC OS 2, with archives opening automatically when they are double-clicked upon.

However, should you still be having problems getting at the files on earlier discs, here is how to do it:

- Locate a copy of *ArcFS* – you can find one of these by Shift-double-clicking on the *!!Menu* icon.
- Run *ArcFS* so that its icon appears on the left of the icon bar.
- Then, Shift-double-click on the icon of the section you are interested in; a window will open containing a *!Help* file, a *!Run* file, a *!Sprites* file and an archive (which has a directory icon with a yellow flash in the corner).
- Drag this archive to the *ArcFS* icon, and it should be opened as normal.

Not all programs on the cover disc will work with RISC OS 2. The *INFO section of the magazine contains a compatibility table for the programs in that section; both the Internet starter pack and *MacroLife* require RISC OS 3.1 or greater.





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650MB Optical Disk (media)	£39

For further information on proTeus and supporting dealers

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Tel: 01483 **503121** **Fax**: 01483 **451371**

All prices exclude VAT and delivery.

**Requires appropriate SCSI Interface (all models) and cable (external model). Media not included. E&OE*

Strong Legs

Chris Mellor explains how DEC is helping ARM to run faster.

Money makes the world go round and it's the prospect of it that's helping to make ARMs go faster too. ARM is a leader in designing small, low power consumption microprocessors. Digital is the current world leader in producing the fastest microprocessor – the Alpha 21164 – but this chip is too large, too hot, and draws too much power to be used in the new market; the convergence of computing, consumer electronics and telecommunications (see figure one). The result of the Digital/ARM partnership is going to be StrongARM – the new chip intended to produce 200 Dhrystone II MIPs at 200MHz while consuming only 500 milliwatts. This would give Alpha-class speed with ARM-class size and power consumption.

New markets for RISC chips

Figure one shows how these worlds are converging, and Acorn is involved directly or indirectly in many of the items of this chart. Its Online Media subsidiary produces set-top boxes (STBs) and is part of an Olivetti Telemedia division which includes online service provision. Acorn Risc PCs are found in many of the sectors on the chart as well. Apple is the only other computer manufacturer of significance focused on this new market.

For chip manufacturers, the market creates new demands. Generally, microprocessors are optimised for sheer performance – Alpha – or for low power consumption and small size – ARM. But the market convergence means that embedded RISC micros used in consumer electronic devices like STBs and video games now have to handle substantial computing tasks such as MPEG decompression.

Malcolm Bird, head of Online Media, says that the more integration it can use in its STBs the better. Online Media's version two STB uses the ARM7500, but Malcolm needs more, as he needs MPEG decompression on the chip. The fewer the STB components the cheaper the box. Bird says: 'StrongARM would meet our criterion of significantly increasing the functionality of our next generation products.'

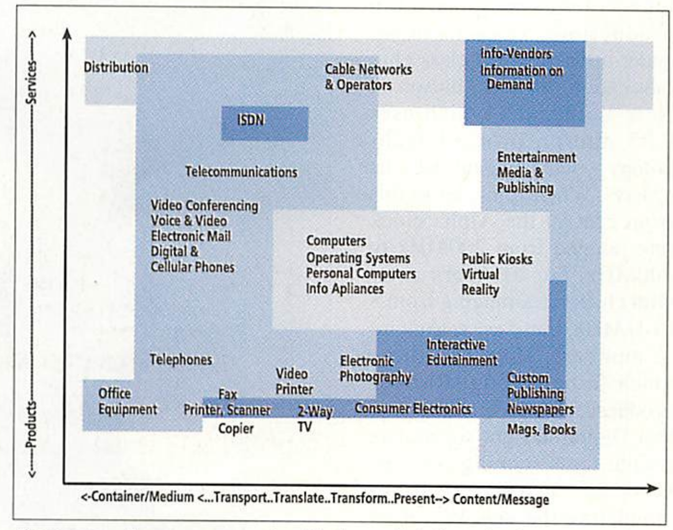


Figure one – the new converging Media market, from Apple.

Apple's Newton personal digital assistant uses the ARM610, which is three-year-old technology now, according to ARM's marketing manager, Trent Poltronetti. Apple wants to expand the Newton line. Apple UK Newton product manager, Clive Girling, reckons: 'You'll probably see both smaller and larger versions of the MP120 later this year. Some people want true shirt pocket size, others want a slate format.'

Apple needs more power than the current 5 volt 25MHz ARM610 provides. There was speculation that Apple might switch to a PowerPC design, but the key for a personal Digital Assistant (PDA) is power consumption. Girling says that he always has to create this balance between faster computation time and reduced battery life.

Apple has recently confirmed that it is switching to a 3.3 volt ARM chip, and sources indicate that it is the ARM710. A factor in its decision is that the marriage of Digital and ARM will produce ARM designs capable of powering new applications of Newton technology such as electronic whiteboards. Kevin Fielding, StrongARM product manager for Digital at its Palo Alto research lab, says that he believes the Newton technology will become ubiquitous.

Digital's design process

We can see why ARM is in this partnership. Digital brings them the means to ramp up ARM power in months rather than years. For Digital, ARM brings them the entry to this emerging computing, consumer electronics and communications market. It brings them the potential for



ARM Ltd's MD, Robin Saxby, sees a wide range of markets for the new chips, and believes that ARM sales and profits will rise sharply during 1996.

high volume merchant chip production. They have an under-utilised world class chip fabrication plant at Hudson in New York state, which uses 0.35 micron process technology – what Digital calls its CMOS5. When it moved to this from CMOS4 the Alpha clock rate jumped from 200MHz to 300MHz. For us Acorn users with clock rates ranging from 8 to 33MHz, these are astronomic numbers. How can these much faster StrongARMs be produced? Kevin Fielding says that Digital has got superlative design tools running on clusters of Alpha systems simulating the new processor design.

'Simulation is the key to the design process,' he explains, 'backed by computer power. We boot operating systems on a design at the transistor level. Digital can run a circuit-timing analysis of critical paths, including electron migration analysis and something called a full antenna model of clock trees within the chip. This enables Digital to watch the movement of a 300MHz clock cycle picosecond-by-picosecond through a chip.'

There seems to be no doubt that Digital, with its team of ex-Alpha designers, can produce the goods. What it needs to do is try for a 3D optimisation – size, power consumption and performance. The power constraint is less than 500 milliwatts for personal digital assistants, and less than 1 watt for 'tethered applications' like STBs and printer controllers. Digital aims to keep under a $15-20 cost barrier – however, this is seen as part of overall system cost. If it can put an MPEG functional block on the chip and so remove an MPEG chip from the system then overall system cost goes down, although chip cost might breach $20.



Trent Poltronetti – Marketing Communications Manager for ARM Ltd – believes that progress on the StrongARM project is well underway.

StrongARM specs

StrongARM will be a range of chips. Digital will supply the actual core processor but also licence the design to other ARM partners such as VLSI and Cirrus, if they want it. The company will also produce a family of application-specific StrongARM chips for sale by itself. Thus there could be Digital versions with an MPEG decoder or modem functionality or 3D graphics suitable for a video phone.

The work is being done by chip designers at Digital's western research labs in Palo Alto, a graphics and multimedia group in a Digital plant at Hudson, Massachusetts, and in ARM's Cambridge offices. The chip will be made at Digital's Fab 6 plant in Hudson which also makes Alpha processors and PCI bus chips.

The characteristics emerging of StrongARM are:

Volts:	3.3
Clock rate:	150-200 MHz
Pipeline:	5 stages
Process:	0.35 micron (0.25 in 1998, 0.18 in 2001)
Power Consumption:	500milliwatts
Metal layers:	4
Performance:	200 Dhrystone II MIPs.

Digital's CMOS6 process features four layers of metal. Apparently, the third layer is being reduced in thickness for StrongARM to lower the power requirements.

Components on the chip will include: core, cache, memory management unit, write buffer, MPEG decoder, graphics design block and networking block.

Most of the peripheral blocks will come from Digital's Hudson plant – Digital already has networking, graphics and MPEG design blocks in its Alpha library. The Hudson group is working on hardware design blocks for MPEG2 video encoders and decoders; MPEG2 is a broadcast TV quality standard which provides four to five times the data of MPEG1 and specifies a 704 by 480 pixel window at 30 fps played from a quad-speed CD-ROM drive. For comparison, MPEG1 describes a screen image size of 320 by 240 pixels with a frame rate of 30 fps. MPEG2 video presents much better quality to the viewer than MPEG1.

What the partnership means

Industry analysts think the Digital and ARM deal is a good one. Dataquest director, Jerry Banks, is quoted as saying that the relationship looks to be a perfect strategic fit. ARM gains access to high-performance microprocessor design and process technology, while Digital gains ARM's expertise in low-power design, as well as access to high-volume markets with significant potential. The resulting products could have a far-reaching effect on many emerging consumer applications like PDAs, interactive TV and games.

Parivash Aram, European marketing manager for Digital Semiconductor, says that there are three embedded systems markets:

- High end – colour laser printers, VR systems, X-terminals
- Mid-range – set top boxes
- Consumer-embedded – PDAs.

She thinks that Digital will get Alpha size, cost and power consumption down to meet the high-end requirements – StrongARM and PowerPCs will compete for the other two markets. The market for embedded RISC processors in consumer electronics is predicted to grow at 75 per cent annually by InStat, who thinks that it will reach 10 million chips in 1998. Digital's Alpha processor is currently the fastest, most powerful general purpose microprocessor available.

Microprocessor Report and other publications give it a substantial lead over its competition. We can hope to see StrongARM become the performance leader in the embedded RISC microprocessor market. As a major league chip vendor, Digital is used to using clock speed to differentiate versions of its chips. Thus, we might expect a family of StrongARM chips with varying performance and prices delineated by clock speed. For example:

- Entry-level: 150MHz
- Mainstream: 200MHz
- Enhanced version: 230MHz

It is difficult to compare the potential performance of StrongARMs with existing mainstream chips like Pentiums and PowerPCs. ARM uses the Dhrystone II MIPs measure, whereas Intel and the PowerPC people use SPECint92s and SPECfp92s. Table one gives a comparison.

Table one – a comparison of chip performance

Vendor	Chip	Clock (MHz)	SPECint92s
Digital	Alpha 21194	266	330
Intel	Pentium	120	140
	P6	133	200+
IBM	PowerPC 604	100	160
	PowerPC 603	66	60

Can we position StrongARM in this august company? I don't believe anyone has run a SPEC performance measure on ARMs, but we can try and derive a position by using an average SPECint/clock ratio. The average SPECints/Mhz number in the table varies between 0.9 and 1.24. Let's assume a 1:0.5 ratio which would put a 200MHz StrongARM part at 100 SPECint92s. Amazing – we're up in the entry-level Pentium class systems area.

When asked if StrongARM would reach Pentium levels of performance, Pat McGloyne from Digital's Hudson plant replied: 'It depends what Pentium we're talking about.' She claimed that we were going to see performance in this space (consumer electronic RISC chips) that had not been seen before.

For comparison, the ARM610 *might* have a SPECint/clock ratio of 1:1.50 because of ARM's expertise in getting high performance out of limited clock cycles. This ratio would put the 25MHz ARM610 at 37.5 SPECint92s.

Applications for the StrongARM

In terms of ARM's prospects, StrongARM could be a block buster. The lack of top-end cover in its range may well have limited its take-up so far. Certainly, Apple is keenly involved with StrongARM. At announcement time, Apple's VP for personal interactive electronics, Shane Robinson, said that Apple's Newton engineering team had been working with Digital and ARM in defining the first StrongARM microprocessor. Since then, Apple has recommitted to ARM chips for Newton and is set to launch new Newton message pads later this year. Also, Motorola has brought out a Newton-based PDA of its own, having announced a device called Marco (Marco POlo, the traveller, get it?), a Newton with a built-in radio modem. Motorola has bought in to the vertical application idea of PDA marketing and Marco has a set of sales-related applications: SalesMate for order entry and stock queries, and SkySales for sales tracking based on Lotus Notes. Marco will be launched in the UK later this year. Motorola also has a PDA called Envoy which is PowerPC-based, so it is reasonable to assume that Motorola has been aware of the StrongARM possibilities for some time.

Robin Saxby, ARM's MD, reckons that StrongARM will be used in video phones and portable video terminals because of its MPEG decompression, and in STBs, multimedia computers (Risc PCs) and games machines because of its high resolution graphics. He also sees the chips being used in PDAs, printers, modems and encryption/decryption devices. We could see ARM unit sales and ARM revenue turn strongly upwards in 1996.

Where does this leave Acorn?

Acorn will get income from this, due to its shareholding in ARM. The proportion of ARM production going into Acorn computers will reduce, tending to make Acorn's needs less important to ARM's strategy. For Acorn, StrongARM does offer a way forward to much higher performance without multi-processing – RISC OS could run directly on StrongARMs as they are compatible with the ARM6-7-8 instruction set. A multi-processor Risc PC would mean substantial design and coding work on the operating system. Much has been made of TAOS recently, but RISC OS may not be destined for multi-processing at all.

It is speculated that ARM810 systems will be announced by Acorn towards the end of this year, which would enable StrongARM to slot in above those for Autumn 1996. The higher speculative StrongARM SPECint92 numbers would make such Risc PCs on a par with Power Macs from Apple. Acorn would no longer have a relative power disadvantage and could start dazzling people with performance again. The more modest numbers would still mean very much higher-performance Risc PCs though.

Progress so far? Trent Poltronetti says that it's well underway. Mid to late autumn still looks good, as ARM has a spec on what StrongARM will be so it's possible to design to it now. He confirms that ARM and Digital are in discussions with pretty big customers regarding StrongARM use. Dave Jagger, ARM's technical marketing manager, predicts volume production scheduled for early next year – lots of applications will emerge throughout 1996 in areas such as PDAs, speech recognition, digital imaging and encryption for pay per view.

One aspect of the StrongARM deal is that it is another win for a British hi-tech company. In this emerging and converging computing, telecommunications and consumer electronics market, British companies are doing great things. We have world class VR companies like Superscape and Virtuality, and we have a world class RISC microprocessor company in the shape of ARM. StrongARM gives it a leg up the rankings and all we Acorn users could potentially benefit. AU



Parivash Aram, European Marketing Manager for Digita, sees three embedded semiconductor markets, with Alpha chips covering the high-end market and StrongARM competing with PowerPC chips for the other two.

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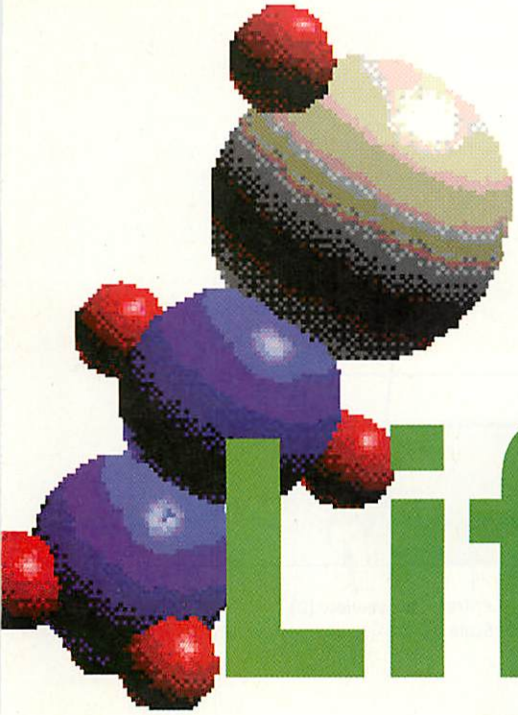
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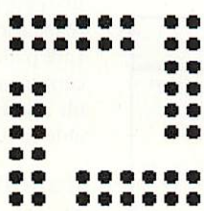


Life, the universe and everything

The game of Life has been entertaining users from the earliest days of Acorn computers. Chris Taylor brings the game bang up to date with a multitasking version brimming with features.

Twenty-five years ago, an obscure American company called Intel developed a new type of chip which they called a microprocessor. In the same year, a young Cambridge mathematician named John Conway devised a new type of game which he called Life. The first microcomputers didn't appear for some time, but when they did, Life was waiting for them.

Conway originally played the game by hand by using draughts on a chessboard, but the simple rules of the game resulted in astoundingly complex behaviour, and he soon resorted to a computer. After Martin Gardner described the game in his column in Scientific American, Life crossed the Atlantic and became a cult, consuming thousands of hours of then very expensive computer time. Some of the Life programs were very powerful, allowing huge Life patterns to be tracked. A whole terminology developed as new patterns were discovered and named.

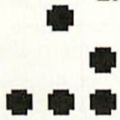


Today, the only microprocessors which can't run Life lurk inside washing machines and video recorders. However, most versions of the game are fairly basic; written to show off the speed of the computer or to demonstrate a programming environment. *MacroLife* runs on the Acorn desktop and its design emphasises flexibility and ease of use rather than outright speed.

Starting out in Life

To use *MacroLife*, start the program and click on the icon bar icon to create a new Life 'plane'.

If you haven't seen Life before, enter three cells in a row by clicking or dragging with Select. Use Adjust to delete any unwanted cells. This is the simplest stable Life pattern – the 'blinker'.

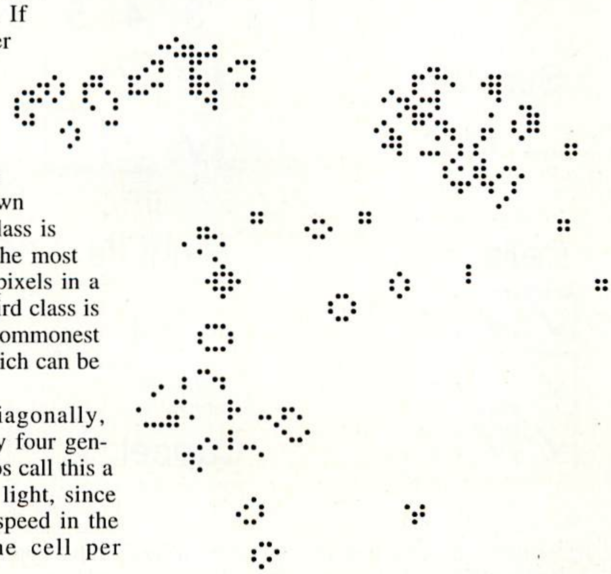


You can see why it's called that if you start the program running, by clicking on the 'run' button on the toolbar (the arrow symbol). You may need to slow it down to see clearly what is going on. Choose 'Set speed' from the Edit menu to do this, or alternatively, you can single-step the display using the 'step' button (the broken arrow).

Each cell has eight neighbours, counting the cells which touch at the corners. If, in a given generation, three of its neighbour cells are on, or alive, the cell will be alive in the next generation. If it has two live neighbours, its state won't change. If it has any other number, it will be dead. That's it. Life has no other rules.

The blinker is a member of a class of Life patterns collectively known as oscillators. Another class is the still lifes, of which the most basic is the block: four pixels in a two-by-two square. A third class is the spaceships, and the commonest of these is the glider, which can be seen on the icon bar.

The glider moves diagonally, advancing one cell every four generations. (Life aficionados call this a quarter of the speed of light, since the maximum possible speed in the Life 'universe' is one cell per generation.)

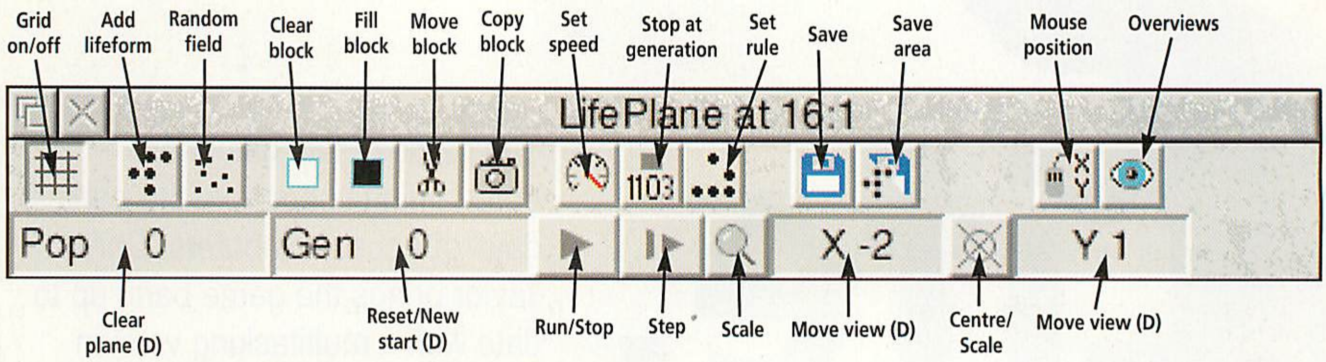


Common Lifeforms

Most of the common still lifes and many other Lifeforms are illustrated in the *Draw* file, *Patterns*, which can be found in the *Docs* directory inside the application.

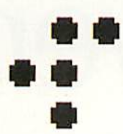
One of Conway's aims when creating the game was to allow patterns which would grow forever, but it quickly became obvious that finding such patterns would not be easy.

One simple five-cell pattern, the 'r pentomino'



The ***MacroLife*** **tool bar. A (D) symbol means that a double-click is required.**

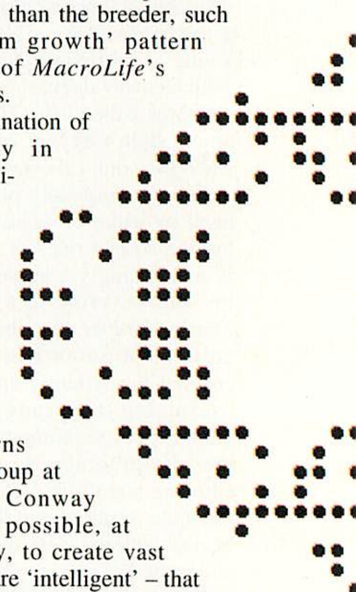
(illustrated in the *Patterns* file), looks as though it might be a candidate. It seethes with activity for hundreds of generations, throwing out gliders and spreading over a large area, but eventually, after 1103 generations, it settles down and stops growing. An even more prolific pattern, the 'Acorn' (no relation), grows for more than 5000 generations, but finally it also stabilises. Conway offered a $50 prize for the first person to find a Life pattern that grew forever, or to prove that such a pattern was impossible.



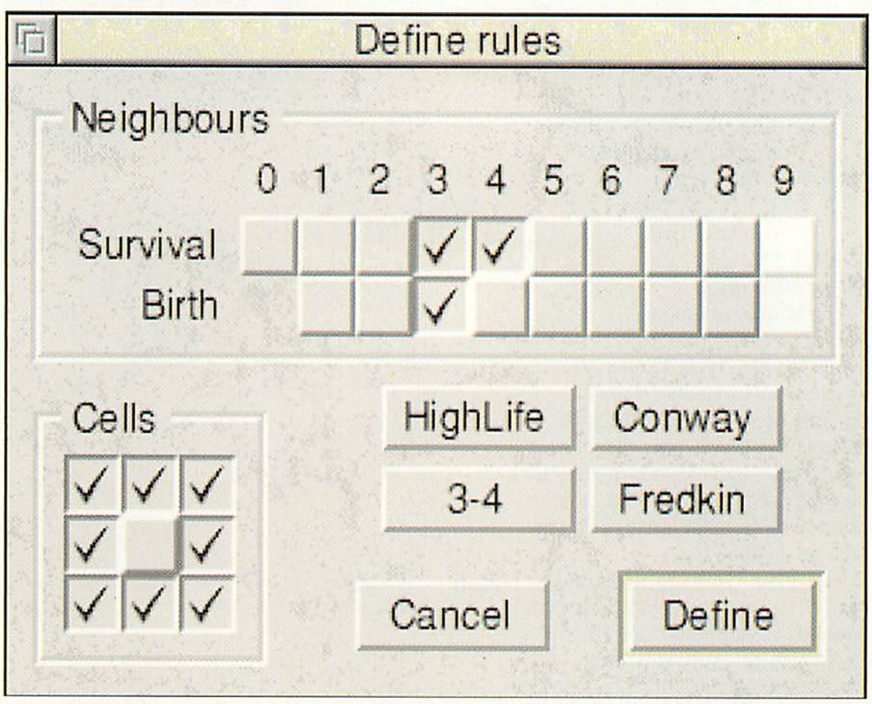
At MIT, a group of students took up the challenge and eventually won the prize with an ingenious construction called a glider gun, which does just what the name implies.

A second class of propagators are known as 'puffer trains' – moving patterns which leave a trail of objects behind them. Like the glider gun, the original puffer train can be found as one of *MacroLife*'s predefined Lifeforms. It creates an enormous tail of debris, the end of which doesn't stabilise until generation 5533. Most versions of Life can't follow this pattern, but with *MacroLife* (and patience) it can be done. Probably the best way is to set a 'stop' point at generation 5533 and leave the computer running. You can then come back and examine the results.

The most sophisticated pattern created during the early Life explorations was the 'breeder'; a sort of factory ship which builds glider guns. This results in ever-accelerating growth as the gliders cover more and more of the plane. The '13 Gliders make a Gun' Lifeform in *MacroLife* shows how gliders can collide together to form a gun. More recently, Life researchers have found patterns which grow faster than the breeder, such as the 'Maximum growth' pattern included as one of *MacroLife*'s predefined patterns.



Part of the fascination of Life is the way in which the Life universe offers an insight into our own. As with Conway's game, complexity in our world arises from a few fundamental laws. Inspired by the complex patterns created by the group at MIT and others, Conway proved that it is possible, at least theoretically, to create vast Life patterns that are 'intelligent' – that can sense their environment, react to stimuli and even reproduce. No-one has been able to design such a pattern – yet.



Altering the rules can change how your life pattern behaves. This is similar to Conway's Life, but with more cells needed for survival. Most Lifeforms degenerate quickly into a number of oscillators.

How it works

The *MacroLife* plane contains over four billion cells, and since even a 256Mb Risc PC couldn't accommodate an array of that size, it uses various tricks to economise on storage.

Several approaches were considered and discarded. An early idea was to use a sparse matrix to store the plane, indexed via linked lists. This was rejected as too slow, and my next plan was to use a hash table to store occupied cell co-ordinates. This would probably have worked, but it presented problems when trying to create overviews of the plane at various levels, and it was while thinking about the requirements of the overview windows that I hit on the solution described below.

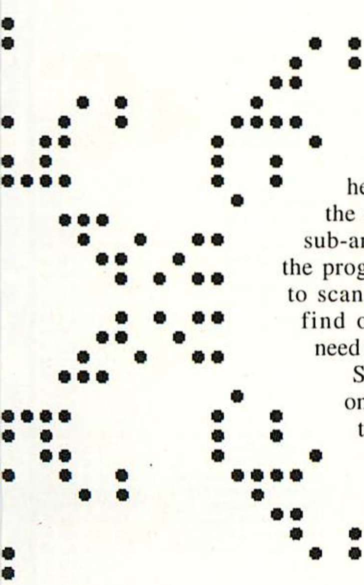
The entire plane is stored in a four-level tree structure, using 16-bits per dimension. These are allocated as follows:

The overall size is thus 65536 x 65536

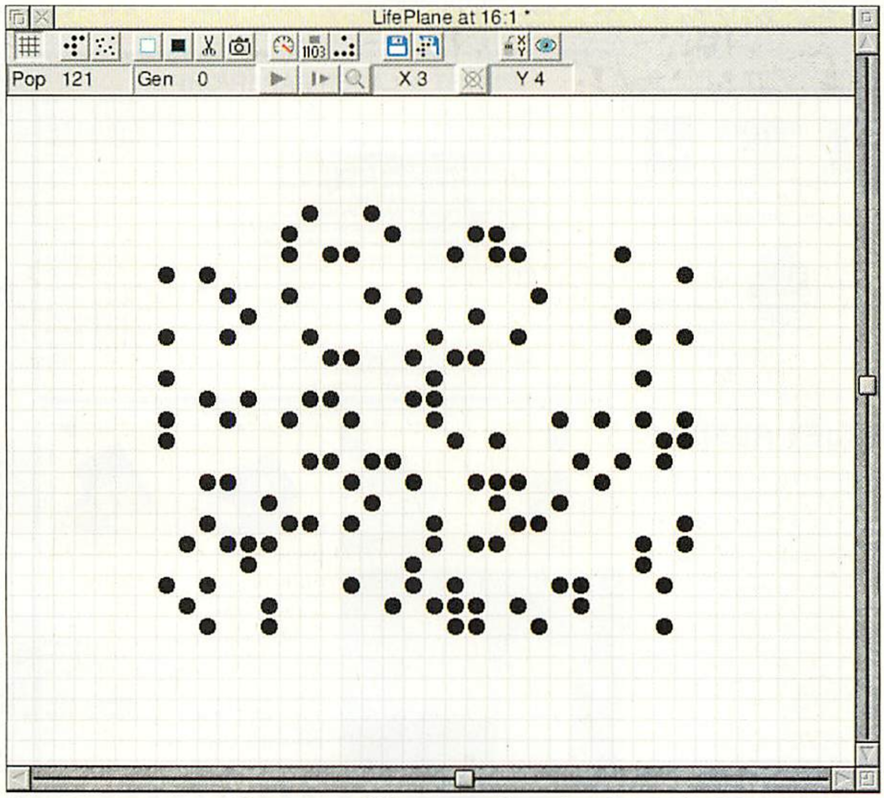
cells, which is large but still manageable as a scrollable window. There are two 16 x 16 global arrays, one for the start generation and one for the current generation, each of which covers the whole plane in blocks of 4096 cells. If any of these blocks is occupied, a regional array is allocated, covering the block in units of 256 cells. Again, each occupied unit is allocated a local array, which in turn points to the cell arrays, each of which contains 16 x 16 bits.

Throughout the program, plane co-ordinate pairs are stored as 32-bit integers. These are copied into a co-ordinate structure split into 4-bit segments (nybbles) when cells need to be referenced.

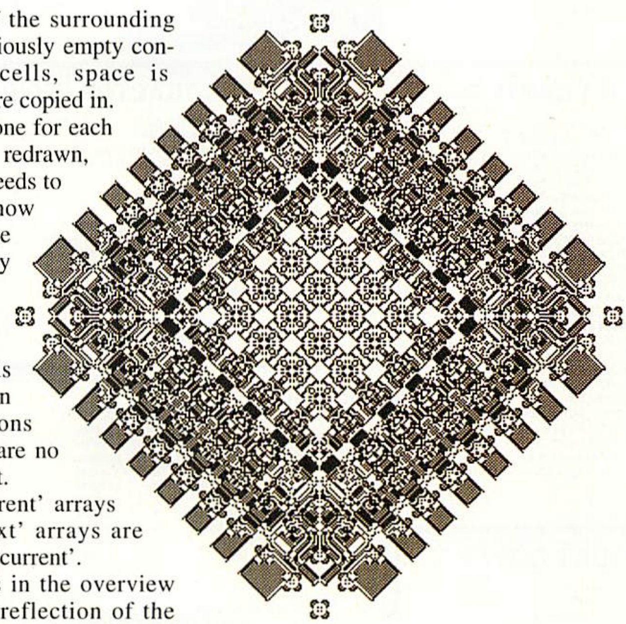
During the calculation of a new generation, extra cell arrays are maintained for the next generation, but these are discarded when the calculation is complete. Any arrays which become unoccupied are also freed, and all but the global arrays have a header which stores the count of occupied sub-arrays. This means the program doesn't need to scan them in order to find out whether they need to be freed.



Since the cell arrays only use a single bit to store the Life cells, they can't be used when calculating new generations. The generation code copies the contents of each array in turn into a work area, together with portions of the eight neighbouring arrays. The Life calculation is carried out in this work area and the results are copied back to the 'next' array. If any of the surrounding arrays which were previously empty contain newly created cells, space is allocated and the cells are copied in.



You can create your own Life patterns or fill in an area with random dots at a fixed density, and watch the patterns develop.



After this has been done for each cell array, the cells are redrawn, since the redraw code needs to know which cells are now dead and which are newly alive. Simply redrawing everything would be too slow and would make the grid lines and surviving cells flicker. A faster variation is used at magnifications below 3:1, since there are no grid lines to worry about.

Finally, the old 'current' arrays are freed and the 'next' arrays are switched to be the new 'current'.

The 'occupied' cells in the overview windows are a direct reflection of the array pointers. If an array pointer is non-null (i.e. it is pointing to a sub-array), then the overview code sees this and lights up a blob in the appropriate window.

There is plenty of scope for speeding up the calculation of new generations in *MacroLife* – the most obvious option being to recode portions of the program in assembly language.

If you want to know more about the data structures used by the application, there is an annotated copy of the C structures in the *Docs* directory. AU

Life on the cover disc

MacroLife is on this issue's cover disc and this version is unregistered. It is fully functional – all the saving functions and so on work – but on loading it will pop up a dialogue box encouraging you to register.

Apart from peace of mind and a clear conscience, registration gets you a manual, access to future upgrades, and a library of Lifeforms. Registration costs eight pounds, half of which goes to Motivation, a charity which designs inexpensive wheelchairs for use in poorer countries which cannot afford commercial models. *Acorn User* strongly encourages you to support Chris by registering

Contact point

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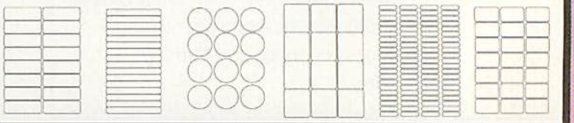
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J8360 63.5x38.1mm (21 lps, 25 shts)	Addressing Labels	£18.00	b	£21.15
INKJET Clear				
J8560M 63.5x38.1mm (21 lps, 40 shts)	Addressing Labels	£18.50	b	£21.74
J8562M 99.1x34mm (16 lps, 40 shts)	Addressing Labels	£18.50	b	£21.74
J8563M 99.1x38.1mm (14 lps, 40 shts)	Addressing Labels	£18.50	b	£21.74
J8565M 99.1x67.7mm (8 lps, 40 shts)	Parcelling Labels	£18.50	b	£21.74
LASER				
L7000 Mixed Trial Pack	Various Sample Sheets	£5.00	a	£5.88
L7159 64x34mm (24 lps, 100 shts)	Addressing Labels	£20.50	b	£24.09
L7160 63.5x38.1mm (21 lps, 100 shts)	Addressing Labels	£20.50	b	£24.09
L7160M 63.5x38.1mm (21 lps, 40 shts)	Addressing Labels	£11.00	b	£12.93
L7160E 63.5x38.1mm (21 lps, 250 shts)	Addressing Labels	£45.00	d	£52.88
L7161 63.5x46.6mm (18 lps, 100 shts)	Addressing Labels	£20.50	b	£24.09
L7162 99.1x34mm (16 lps, 100 shts)	Addressing Labels	£20.50	b	£24.09
L7162M 99.1x34mm (16 lps, 40 shts)	Addressing Labels	£11.00	b	£12.93
L7163 99.1x38.1mm (14 lps, 100 shts)	Addressing Labels	£20.50	b	£24.09
L7163M 99.1x38.1mm (14 lps, 40 shts)	Addressing Labels	£11.00	b	£12.93
L7163S 99.1x38.1mm (14 lps, 25 shts)	Addressing Labels	£8.00	b	£9.40
L7164 63.5x72mm (12 lps, 100 shts)	Addressing Labels	£20.50	b	£24.09
L7165 99.1x67.7mm (8 lps, 100 shts)	Parcelling Labels	£20.50	b	£24.09
L7165M 99.1x67.7mm (8 lps, 40 shts)	Parcelling Labels	£11.00	b	£12.93
L7165E 99.1x67.7mm (8 lps, 250 shts)	Parcelling Labels	£45.00	d	£52.88
L7166 99.1x93.1mm (6 lps, 100 shts)	Parcelling Labels	£20.50	b	£24.09
L7167 199.6x289.1mm (1 lps, 100 shts)	Shipping Label	£20.50	b	£24.09
L7168 199.6x143.5mm (2 lps, 100 shts)	Shipping Labels	£20.50	b	£24.09
L7169 139x99.1mm (4 lps, 100 shts)	Parcelling Labels	£20.50	b	£24.09
L7173 99.06x57mm (10 lps, 100 shts)	Shipping Labels	£20.50	b	£24.09
L7263 99.1x38.1mm (14 lps, 25 shts)	Addressing Florescent Yellow	£11.00	b	£12.93
L7363 99.1x38.1mm (14 lps, 25 shts)	Addressing Florescent Pink	£11.00	b	£12.93
L7630 63.5 Dia (12 lps, 50 shts)	White Circular Labels	£13.00	b	£15.28
L7651 38.1x21.2mm (65 lps, 25 shts)	Mini Addressing Labels	£8.00	b	£9.40
L7651H 38.1x21.2mm (65 lps, 100 shts)	Mini Addressing Labels	£20.50	b	£24.09
L7654 76.2x46.4mm (12 lps, 14 shts)	Video Spine & Face Labels	£11.00	b	£12.93
L7671 76.2x46.4mm (12 lps, 25 shts)	Video Face Labels	£11.00	b	£12.93
L7674 145x17mm (16 lps, 25 shts)	Video Spine Labels	£11.00	b	£12.93
L7655 89x42mm (12 lps, 25 shts)	Audio Cassette Labels	£11.00	b	£12.93
L7656 46x11.11mm (84 lps, 25 shts)	35mm Slide Labels	£11.00	b	£12.93
L7664 70x71.9mm (8 lps, 25 shts)	3.5" Diskette Wrap Over	£11.00	b	£12.93
L7664H 70x71.9mm (8 lps, 100 shts)	3.5" Diskette Wrap Over	£20.50	b	£24.09
L7665 72x21.15mm (24 lps, 25 shts)	Mini Data Cartridge Labels	£11.00	b	£12.93
L7666 70x52mm (10 lps, 25 shts)	3.5" Diskette Face Only	£11.00	b	£12.93
L7667 133x29.61mm (9 lps, 25 shts)	Standard Data Cartridge	£11.00	b	£12.93
L7670 63.5 Dia (12 lps, 25 shts) FY	Florescent Yellow Circular	£11.50	b	£13.51
L7680 38.1x21.2mm (65 lps, 25 shts)	Mini Addressing Gold	£17.00	b	£19.98
L7690 38.1x21.2mm (65 lps, 25 shts)	Min Addressing Silver	£17.00	b	£19.98
L7170 134x11mm (24 lps, 25 shts)	Eurofolio/Filing Labels	£11.00	b	£12.93
L7171 200x60mm (4 lps, 25 shts)	Lever Arch Labels	£11.00	b	£12.93
L7172 100x30mm (16 lps, 25 shts)	Ring Binder Labels	£11.00	b	£12.93
LASER Mini-Sheets				
L2186 69.9x50.8mm (4 lps, 40 shts)	3.5" Diskette Face Only	£7.50	b	£8.81
L2163 101.6x50.8mm (4 lps, 40 shts)	Parcelling Labels	£7.50	b	£8.81
L2162 101.6x33.8mm (6 lps, 40 shts)	Addressing Labels	£7.50	b	£8.81
L2160 66.8x25.4mm (8 lps, 40 shts)	Addressing Labels	£7.50	b	£8.81
L2164 50x14mm (28 lps, 40 shts)	Suspension File	£7.50	b	£8.81
LASER Clear				
L7551 38.1x21.2mm (65 lps, 25 shts)	Mini Addressing Transparent	£15.00	b	£17.63
L7562 99.1x33.9mm (16 lps, 50 shts)	Addressing Transparent	£25.00	b	£29.38
L7562S 99.1x33.9mm (16 lps, 25 shts)	Addressing Transparent	£15.00	b	£17.63
L7563 99.1x38.1mm (14 lps, 50 shts)	Addressing Transparent	£25.00	b	£29.38
L7563S 99.1x38.1mm (14 lps, 25 shts)	Addressing Transparent	£15.00	b	£17.63
L7565 99.1x67.7mm (8 lps, 50 shts)	Parcelling Transparent	£25.00	b	£29.38
L7575S 99.1x67.7mm (8 lps, 25 shts)	Parcelling Transparent	£15.00	b	£17.63
LASER Business Cards				
L7413 90x50.8mm (10 lps, 25 shts)	Business Cards, Micro Perforated	£15.00	b	£17.63
LASER Name Badges				
L7418K 86.6x55.5mm (8 lps, 3 shts, 10 Holders)	Name Badge & Holders	£17.00	b	£19.98
L7418 86.5x55.5mm (8 lps, 25 shts) Refill Pk	Name Badge	£13.50	b	£15.86
LASER Postcards				
L7421 139.37x97.29mm (4 lps, 25 shts)	Postcards	£16.00	b	£18.80



INKJET CARTRIDGES

	Ex Vat		Inc Vat
HP51626A DJ Double Life	£17.02	a	£20.00
HP51633a DJ Portable Black	£15.25	a	£17.92
HP51625A Tri Colour Cartridge	£20.85	a	£24.50
HP51640A HP1200c Black	£17.00	a	£19.98
HP51640? HP1200c C/M or Y	£20.20	a	£23.74
HP51604A Thinkjet/Quietjet	£9.00	a	£10.58
HP51639A Paintjet XL Black	£14.95	a	£17.57
HP51606C Paintjet Tri Colour	£20.20	a	£23.74
HP51606A Paintjet Black	£22.20	a	£26.09
HP51606R Paintjet Red	£23.00	a	£27.03
HP51606B Paintjet Blue	£23.00	a	£27.03
HP51606Y Paintjet Yellow	£23.00	a	£27.03
Epson Stylus 800 Black	£8.00	a	£9.40
Epson Stylus Colour - Colour	£25.00	a	£29.38
Epson Stylus Colour - Black	£12.00	a	£14.10
Olivetti JP150 Black	£14.60	a	£17.16
Canon BC-01 Black	£14.00	a	£16.45
Canon BC-02 Black	£15.00	a	£17.63
Canon BJC600 Black	£5.20	a	£6.11
Canon BJC600 C/M or Y	£6.20	a	£7.29
Canon BJC4000 BC20 Black	£21.00	a	£24.68
Canon BJC4000 BCI21 Black	£7.00	a	£8.23
Canon BJC4000 BCI21 Colour	£12.00	a	£14.10
Canon JI-20c Integrex Colour	£14.03	a	£16.49
Canon JI-25B Integrex Black	£10.02	a	£11.77
Canon BJ300/330 Black	£11.50	a	£13.51
Canon BJC800 Black	£13.50	a	£15.86
Canon BJC800 C/M or Y	£17.00	a	£19.98

DUST COVERS

	Ex Vat		Inc Vat
PC 2 Piece Dust Cover	£6.00	a	£7.05
PC Mini Tower Dust Cover	£3.56	a	£4.18
PC 14" Universal Monitor Cover	£3.56	a	£4.18
PC 102 Key UK Keyboard Cover	£3.56	a	£4.18
Acorn A5000 All in One Dust Cover	£6.00	a	£7.05
Acorn A4000 All in One Dust Cover	£6.00	a	£7.05
Acorn A3010/3020 Dust Cover	£4.55	a	£5.35
Risc PC (1 Stack) Dust Cover	£6.00	a	£7.05
Small 80 Column Printer Cover	£3.56	a	£4.18
Large 132 Column Printer Cover	£6.40	a	£7.52
HP Deskjet 500/550/560 Cover	£3.56	a	£4.18
Canon BJ10 Dust Cover	£3.56	a	£4.18
Canon BJ200 Dust Cover	£4.56	a	£5.36
Canon BJC600 Dust Cover	£4.56	a	£5.36

LASER TONER

	Ex Vat		Inc Vat
Canon LBP-8 IV	£70.00	d	£82.25
Canon LBP-8 III	£59.00	d	£69.33
Canon LBP-4U	£52.00	d	£61.10
HP Laserjet III/IIID	£52.00	d	£61.10
HP Laserjet IIIP/IIP	£48.00	d	£56.40
HP Laserjet IIISI/4SI	£95.00	d	£111.62
HP Laserjet 4/4M/4MP/4P	£70.00	d	£82.25
HP Laserjet 4L/4ML	£48.00	d	£56.40
Star LS-5	£83.00	d	£97.53

CONTINUOUS TRACTOR FED PAPER & LABELS

	Ex Vat		Inc Vat
70 GSM Micro Perforation 375 Sheets A4	£3.83	d	£4.50
70 GSM Micro Perforation 2000 Sheets A4	£14.39	d	£16.91
70 GSM Micro Perforation 375 Sheets Coated Inkjet A4	£5.73	d	£6.73
70 GSM Micro Perforation 2000 Sheets Coated Inkjet A4	£22.38	d	£26.30
80 GSM Micro Perforation 375 Sheets A4	£4.82	d	£5.66
80 GSM Micro Perforation 2000 Sheets A4	£24.25	d	£28.49
90 GSM Micro Perforation 375 Sheets A4	£5.76	d	£6.79
90 GSM Micro Perforation 1500 Sheets A4	£16.97	d	£19.94
102x24mm 1 Across White Self Adhesive 1500 Labels	£11.00	b	£12.93
102x37mm 1 Across White Self Adhesive 1000 Labels	£8.50	b	£9.99
102x49mm 1 Across White Self Adhesive 750 Labels	£8.50	b	£9.99
127x49mm 1 Across White Self Adhesive 750 Labels	£9.50	b	£9.99
89x37mm 1 Across White Self Adhesive 1000 Labels	£11.00	b	£12.93
102x37mm 2 Across White Self Adhesive 2000 Labels	£16.16	b	£18.99
102x49mm 2 Across White Self Adhesive 1500 Labels	£16.16	b	£18.99
89x37mm 3 Across White Self Adhesive 3000 Labels	£18.82	b	£22.11

Call for other Labels or Paper not listed.

RIBBONS

B=BLACK RIBBON
C=COLOUR RIBBON

			1-5 Ex Vat		1-5 Inc Vat	6+ Ex Vat		6+ Inc Vat
Amstrad DMP2000/3000	B	2482RN	£2.80	a	£3.29	£2.65	b	£3.11
Amstrad DMP4000	B	2426RN	£3.66	a	£4.30	£3.51	b	£4.12
Amstrad LQ5000	B	2886DN	£6.10	a	£7.18	£5.95	b	£6.99
Amstrad PCW8256/LQ3500	B	2944DN	£2.85	a	£3.35	£2.70	b	£3.17
Amstrad PCW9512	B	2949FN	£3.38	a	£3.97	£3.23	b	£3.80
Brother M1009/1024/1109/1209	B	2412FN	£3.90	a	£4.58	£3.75	b	£4.41
Brother M1818/1824L/1924L	B	2905DN	£4.88	a	£5.74	£4.70	b	£5.52
Citizen 120D/LSP10/Swift 24/9	B	2939DN	£2.85	a	£3.35	£2.70	b	£3.17
Commodore MPS1220/1230	B	2843RD	£4.50	a	£5.29	£4.30	b	£5.05
Commodore MPS1500/1550	B	2863RDB	£6.75	a	£7.93	£6.55	b	£7.70
Epson LQ100	B	2986RD	£4.10	a	£4.82	£4.00	b	£4.70
Epson LX100	B	2999RD	£3.83	a	£4.50	£3.50	b	£4.11
Epson LQ200/400/500/800/850	B	2477DN	£3.45	a	£4.05	£3.25	b	£3.82
Epson LQ1000/1050/1070/1170	B	2478DN	£4.10	a	£4.82	£4.00	b	£4.70
Epson FX/MX/RX80/FX/LX800	B	2273FN	£2.90	a	£3.41	£2.70	b	£3.17
Epson FX/MX100/FX/MX1000	B	2320FN	£3.36	a	£4.30	£3.16	b	£3.71
Epson LX80/86/90	B	2454FN	£2.12	a	£2.49	£2.00	b	£2.35
Fujitsu DL3300/3400, DX2200	B	2849DN	£3.75	a	£4.41	£3.55	b	£4.17
IBM 4207/4212 Proprinter X24	B	4846FN	£3.88	a	£4.56	£3.68	b	£4.32
Mannesman Tally 80/81	B	2698MS	£3.90	a	£4.58	£3.70	b	£4.35
NEC Pinwriter P220/P2+	B	2844RD	£3.03	a	£3.56	£2.93	b	£3.44
Oki ML182/183/192/193/195	B	2455RN	£3.17	a	£3.72	£3.00	b	£3.53
Oki ML320/321/380/390/391	B	2874RD	£3.32	a	£3.90	£3.15	b	£3.70
Panasonic KX-P1123/1124/1140	B	2904RD	£3.46	a	£4.07	£3.26	b	£3.83
Panasonic KX-P1080/1180/90	B	2905RN	£2.89	a	£3.40	£2.69	b	£3.16
Panasonic KX-P1524/1540/1624	B	2953RD	£4.55	a	£5.35	£4.35	b	£5.11
Panasonic KX-P2123/2124/2180	B	2984RD	£5.75	a	£6.76	£5.55	b	£6.52
Seikosha SL90/92/95/96	B	2920DN	£5.70	a	£6.70	£5.50	b	£6.46
Star LC10/20/100	B	2861FN	£2.29	a	£2.69	£2.09	b	£2.46
Star LC200	B	2954FN	£3.00	a	£3.53	£2.90	b	£3.41
Star LC24-10/20/200	B	2868DN	£2.86	a	£3.36	£2.66	b	£3.13
Star ND/NL/NR/NX10, NB24-10	B	2761DN	£3.85	a	£4.52	£3.65	b	£4.29
Taxan Kaga KP810/815/910/915	B	2223RN	£3.14	a	£3.69	£3.00	b	£3.53
Citizen 224/240/Swift 24-9	C	2964DN	£12.81	a	£15.05	£12.61	b	£14.82
Commodore MPS1500/1550	C	2863RDC	£9.38	a	£11.02	£9.00	b	£10.58
Panasonic KX-P2123/2124/2180	C	2985RD	£10.63	a	£12.49	£10.50	b	£12.34
Star LC10/20/100	C	2869FN	£6.00	a	£7.05	£5.80	b	£6.82
Star LC200	C	2959FN	£9.78	a	£11.49	£9.58	b	£11.26
Star LC24-10/20/200	C	2952DN	£9.63	a	£11.32	£9.43	b	£11.08

CABLES & ADAPTORS

		Ex Vat		Inc Vat
Mains Lead 3 Pin Moulded 5 amp	*Computer or Printer Power Lead*	£3.70	a	£4.35
Mains Lead Extension M-F	*Computer to Monitor Power Lead*	£3.70	a	£4.35
4 Gang Extension	*1 Mains Socket converted to 4, Fused*	£6.50	b	£7.64
Parallel Printer Cable 1.8M	*Normal Printer Cable PC/Acorn/Atari etc*	£2.55	a	£3.00
Parallel Printer Cable 3M	*Normal Printer Cable PC/Acorn/Atari etc*	£4.55	b	£5.35
Parallel Printer Cable 5M	*Normal Printer Cable PC/Acorn/Atari etc*	£6.50	b	£7.64
Bi-Directional Parallel Printer Cable	*Fast Data Transfer Cable*	£11.00	a	£12.93
Centronics - Centronics Cable 2M	*Switch Box Cable*	£4.28	a	£5.03
Centronics - Centronics Cable 3M	*Switch Box Cable*	£6.50	a	£7.64
Serial Cable 2M 25 Pin M-F	*All Pins Connected/Printer Cable*	£4.28	a	£5.03
Serial Cable 5M 25 Pin M-F	*All Pins Connected/Printer Cable*	£8.50	b	£9.99
Laplink Cable 1.5M 25&9F-25&9F	*Data Transfer Cable Null Modem (X-Over)*	£8.50	a	£9.99
Midi Leads (Pair)	*Music Data Transfer Cables 5 Pin Din*	£8.00	a	£9.40
Phono Leads (Pair)	*2xPhono Transfer/Extension Cable*	£3.50	a	£4.11
Phono to Stereo Jack Convertor	*3.5mm Stereo Jack to 2xPhono Plugs*	£3.00	a	£3.53
VGA/SVGA Monitor Extension Cable 2M	*15 Pin HD M-F*	£6.50	a	£7.64
Keyboard Extension Cable 2M	*Curly 5 Pin Din M-F Standard PC Keyboard*	£6.50	a	£7.64
Keyboard Extension Cable 2M PS2	*Curly PS2/Risc PC M-F Keyboard Ext*	£6.50	a	£7.64
Mouse Extension Cable 2M	*9 Pin D Type M-F Extender Cable*	£6.50	a	£7.64
Joystick Extension Cable 2M PC	*15 Pin D Type M-F Extender Cable*	£6.50	a	£7.64
Joystick Splitter	*Allows the Use of 2 Joysticks on a PC*	£8.50	a	£9.99
A3010/3020/4000/5000 - Scart Lead 1.5M	*15 Pin HD D Type to Euroscart (Not Sony)*	£8.50	a	£9.99
A3010/3020/4000/5000 - CM8833 MKI	*15 Pin HD D Type - 9 Pin*	£8.50	a	£9.99
A3010/3020/4000/5000 - CM8833 MKII	*15 Pin HD D Type - 9 Pin & Phono Leads*	£8.50	a	£9.99
A3010/3020/4000/5000 - AKF17 & AKF30	*15 Pin HD D Type - 9 Pin*	£8.50	a	£9.99
SCSI 25 Pin D - Centronics	*SCSI Interface to External Box/CD or HD*	£12.00	b	£14.10
SCSI 50 Way IDC Ribbon Cable 1M	*Internal SCSI Cable (Can be Custom made)*	£ ASK	a	£ ASK
SCSI Centronics to Centronics 1M	*External Daisy Chaining/Switch Box Cable*	£14.00	b	£16.45
IDE 40 Way Cable 15" for 2 Hard Drives	*Internal for 2x3.5" IDE Hard Drives or CD's*	£3.00	a	£3.53
IDE 40 Way Sub Miniature Cable	*Internal Cable for 2.5" IDE Hard Drive 6cm*	£8.50	a	£9.99
IDE 40 Way Sub Miniature Cable Short	*As above but only 4cm long (A1200, etc)*	£7.00	a	£8.23
Panasonic CD Ribbon Cable 40 Way	*Internal Cable for CD ROM to Interface*	£3.00	a	£3.53
Panasonic CD Audio Cable	*CD to Soundcard/Interface for Audio CD's*	£3.00	a	£3.53
Sony CD Ribbon Cable 34 Way	*Internal Cable for CD ROM to Interface*	£3.00	a	£3.53
Sony CD Audio Cable	*CD to Soundcard/Interface for Audio CD's*	£3.00	a	£3.53
Mitsumi CD Ribbon Cable 40 Way	*Internal Cable for CD ROM to Interface*	£3.00	a	£3.53
Mitsumi CD Audio Cable	*CD to Soundcard/Interface for Audio CD's*	£3.00	a	£3.53
2xFloppy Disk Drive Ribbon Cable	*Internal Floppy Disk Drive Cable 3.5"/5.25"*	£3.00	a	£3.53
Power Cable Splitter 5.25" or HD/CD 2-1	*Splitter to add an Extra 4 Pin Power Lead*	£3.25	a	£3.82
Power Cable Splitter 3.5" 2-1	*As above but for 3.5" Floppy Disk Drives*	£3.25	a	£3.82
PS2 Keyboard Adaptor	*Converts Std 5 Pin Din Keyboard to PS2*	£3.50	a	£4.11
PS2 to 5 Pin Keyboard Adaptor	*Converts PS2 Keyboard to Std 5 Pin Din*	£3.50	a	£4.11
PS2 Mouse Adaptor	*Converts Serial 9 Pin Mouse to PS2*	£3.50	a	£4.11
Dongle Dangle 6cm	*For use on Restricted Access Computers*	£8.00	a	£9.40

For other cables not listed or specialist cables, please call with specification and we'll make it for you.

NETWORKING

	Ex Vat		Inc Vat
BNC Terminators	£2.00	a	£2.35
BNC Solderless Crimp Plugs	£1.25	a	£1.47
BNC Crimp Plug Cable Boot	£0.50	a	£0.59
BNC Inline Connectors	£1.50	a	£1.76
BNC T Piece	£1.50	a	£1.76
BNC Cable with Plugs 2M	£4.00	a	£4.70
BNC Cable with Plugs 5M	£8.00	b	£9.40
BNC Cable with Plugs 10M	£12.00	b	£14.10
BNC Cable with Plugs 25M	£19.00	d	£22.33
BNC Cable 100M Reel	£60.00	d	£70.50
NE2000 ISA PC Combo Card	£30.00	c	£35.25
NE2000 PCI PC Combo Card	£ POA	c	£ POA
NE2000 Notebook PC Adaptor	£85.00	d	£99.88
Access Card for Acorn - from	£85.00	d	£99.88
Repeater Hubs (Various)	£ POA	e	£ POA
Bridges (Various)	£ POA	e	£ POA

KCS are experienced in most types of Networking and can install a complete network from £300. Call for details or advice.

PRINTERS

	Ex Vat		Inc Vat
Citizen ABC 24 Pin Colour	£135.00	d	£158.63
HP Deskjet Portable	£150.00	d	£176.25
HP Deskjet 320/ASF/Colour Kit	£225.00	d	£264.38
HP Deskjet 540C	£225.00	d	£264.38
HP Deskjet 660C	£365.00	d	£428.88
Canon BJC600	£350.00	d	£411.25
Canon BJC4000	£299.00	d	£351.33
Canon BJ200ex	£195.00	d	£229.13
Canon BJ230ex	£ POA	e	£ POA
Canon BJ10sx	£169.00	d	£198.58
Epson Stylus 800+	£189.00	d	£222.08
Epson Stylus Colour	£345.00	d	£405.38
HP Laserjet 4L	£410.00	d	£481.75

CD ACCESSORIES

	Ex Vat		Inc Vat
CD Caddy	£5.00	a	£5.88
CD Disk Cleaner	£2.98	b	£3.50
CD Tray Flipper Holds 20	£2.55	b	£3.00
Empty CD Jewel Case	£0.50	a	£0.59
CD Protector Rings (Pack of 5)	£1.50	a	£1.76



office data

Novelty Mouse Mats	Ex Vat		Inc Vat
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Pig	£3.56	a	£4.18
Clown	£3.56	a	£4.18
Ladies Top	£3.56	a	£4.18
Male Torso	£3.56	a	£4.18
Football	£3.56	a	£4.18
Cat	£3.56	a	£4.18
Mouse	£3.56	a	£4.18
Pen	£3.56	a	£4.18
Car	£3.56	a	£4.18
Motorbike	£3.56	a	£4.18
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Copyplus Solid Base	£12.00	c	£14.10
Copyplus Flexible Arm	£12.72	c	£14.95
Copyplus A3 Extension Kit	£7.00	b	£8.23
Various Accessories			
Ergo Mouse Pad - Hard Mat	£4.26	b	£5.00
Ergo Mouse Tray & Wrist Rest	£6.00	b	£7.05
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Novelty Cat Mouse Holder Red	£2.50	b	£2.94
Novelty Cat Mouse Holder Black	£2.50	b	£2.94
Novelty Cat Mouse Holder Grey	£2.50	b	£2.94
Wildlife Mouse Mat	£4.00	a	£4.70
Wildlife Wrist Rest	£4.50	b	£5.29
Dinosaur Mouse Mat	£4.00	a	£4.70
Dinosaur Wrist Rest	£4.50	b	£5.29
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Keyboard Station (PC)	£15.90	d	£18.68
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Wrist Support Plastic	£4.90	b	£5.76
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Disk Clips (3) Ring Binder 3.5"	£3.25	a	£3.82
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Disk Mailer holds 6 Reuseable	£3.50	a	£4.11
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Universal 2 Pce Printer Stand	£3.00	c	£3.52
As Above with Printout Tray	£6.50	d	£7.64
Stax 132 Column Printer Stand	£13.00	d	£15.28
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Economy Glass Filter 15"	£21.50	d	£25.26
Economy Glass Filter 17"	£65.00	e	£76.38
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10 out of 10 maths number	16.90	19.86
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Topicart 7 sports equipment (bright ideas)	8.51	10.00
Topicart 8 sports figures (bright ideas)	8.51	10.00
Topicart 9 dinosaurs (bright ideas)	8.51	10.00
Touch games 1 (brilliant)	20.00	23.50
Touch games 2 (brilliant)	20.00	23.50
Tower of babel compendium (cygnus)	21.28	25.00
Tower of babel (cygnus)	8.50	9.99
Tracer	29.79	35.00
Tracker	16.00	18.80
Trivial pursuit	20.00	23.50
Turbo driver for bj printers	38.00	44.65
Turbo challenge ii	20.00	23.50
Epson turbodriver	38.00	44.65
Turbo driver for hp printers	38.00	44.65
Turbo type	16.00	18.80
Typestudio (beebug)	37.00	43.48
Vector (4mation)	75.00	88.13
Virtual golf augusta pack	14.42	16.94
Virtual golf (4th dim)	24.00	28.20
Visual backup for arc (dabhand)	39.00	45.83
Voxbox (clares)	39.00	45.83
Warlocks (network23)	18.00	21.15
Waterfall learning curve pack — Only Joking...Call	0.00	0.00
Wellington square characters	18.00	21.15
White magic 2 (4th dim)	8.51	10.00
Wimp game (4th dim)	6.00	7.05
Beginners guide to wimp programming disc	5.00	5.88
Wolfenstein 3d (powerslave)	22.00	25.85
Wordworks	33.00	38.75
Wordz (colton)	50.00	58.75
World scape	12.50	14.69
Worra battle	8.51	10.00
Worra cad (oak)	65.00	76.38
Wortgut (fabis)	17.02	20.00
Xenon 2	18.00	21.15
X-fire (4th dim)	12.00	14.10
Zarch	14.00	16.45
Zelanites	12.00	14.10
Zool (gremlin)	14.00	16.45

all software is delivery code A (£1.00) Most software in stock!

ACORN UPGRADES

	Ex Vat		Inc Vat
4-8 MB Up. (310,440,400/1)	£249.00	c	£292.57
4-8 MB Up. (A3000/5000)	£249.00	c	£292.57
Arm 3 (A3000/400) & FPA Socket	£114	c	£133.95
Arm 3 As above with FPA.	£179.00	c	£210.32
FPA Upgrade for A5000/540	£79.00	c	£92.82
A3010 1-2 MB Upgrade	£45.00	b	£52.87
A3010 2-4 MB Upgrade	£89.00	c	£104.57
A3010 1-4 MB Upgrade	£132.00	c	£155.10
A3020/4000 2-4 MB Upgrade	£83.00	b	£97.52
A5000 2-4 MB Upgrade	£79.00	b	£92.82
A3000 1-2 MB Upgrade	£52.00	b	£61.10
A3000 1-4 MB Upgrade	£114.00	c	£133.95
A3000 Serial Port Upgrade	£19.00	b	£22.32
A310 4Mb Upgrade	£137.00	c	£160.97
Risc OS Carrier Board (A310)	£22.00	b	£25.85
MEMC 1A Upgrade Kit	£29.00	b	£34.07
A400/1 1Mb Upgrade per meg	£45.00	b	£52.87
Risc OS 3.1 Up. Rom & Books	£75.00	d	£88.12
Midi Expansion Card	£79.00	c	£92.82
CD ROM Drives SCSI	£POA	d	£POA
CD ROM Drives IDE	£POA	d	£POA
Scanlight Junior Handheld	£175.00	d	£205.62
VIDI Archimedes	£55.00	d	£64.62
Hard Drives (int) A3010/3020			
A3010 HD Interface	£69.00	d	£81.07
A3010 HD Int.Face & User Port	£79.00	d	£92.83
85Mb Hard Drive 2.5" IDE	£100.00	d	£117.50
120Mb Hard Drive 2.5" IDE	£110.00	d	£129.25
170Mb Hard Drive 2.5" IDE	£135.00	d	£158.63
210Mb Hard Drive 2.5" IDE	£155.00	d	£182.13
340Mb Hard Drive 2.5" IDE	£190.00	d	£223.25
Hard Drives (int) A4000/5000			
420Mb Hard Drive 3.5" IDE	£149.00	d	£175.08
560Mb Hard Drive 3.5" IDE	£165.00	d	£193.88
520Mb Hard Drive 3.5" SCSI	£195.00	d	£229.13
1Gb Hard Drive 3.5" SCSI	£325.00	e	£381.88
Hard Drives (ext) A3000			
-A3000 Req Interface & Case:			
A3000 IDE Interface Podule	£69.00	d	£81.07
A3000 Hard Drive Case	£65.00	d	£76.38
210Mb Hard Drive 3.5" IDE	£125.00	d	£146.88
420Mb Hard Drive 3.5" IDE	£149.00	d	£175.08
560Mb Hard Drive 3.5" IDE	£165.00	d	£193.88
Acorn Original Mouse	£25.00	b	£29.38
Acorn Replacement Mouse	£19.00	b	£22.33

RISC PC UPGRADES

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Risc PC 1MB VRAM	£70.00	b	£82.25
Risc PC 2MB VRAM	£189.00	c	£222.08
Risc PC Extra Slice & PSU	£99.00	d	£116.33
Risc PC Extra Slice (no PSU)	£39.00	d	£45.83
Risc PC Heavy Duty Keyboard	£64.00	d	£75.20
Risc PC Keyboard Extension	£6.50	b	£7.64
Risc PC Mouse Extension	£6.50	b	£7.64
Risc PC Mouse Mat (Rare)	£4.00	a	£4.70
Risc PC 2nd HD Fixing Kit	£6.00	b	£7.05
Risc PC Memory 4Mb	£118.00	c	£138.65
Risc PC Memory 8Mb	£236.00	c	£277.30
Risc PC Memory 16Mb	£365.00	c	£428.88
Risc PC Memory 32Mb	£768.00	c	£902.40

MODEMS

	Ex Vat		Inc Vat
14,400K External Fax/Modem	£115.00	d	£135.13
28,800K External Fax/Modem	£210.00	d	£246.75
Arcfax Software	£28.00	b	£32.90
ArcComm Software	£40.00	b	£47.00
Modem Cable	£8.50	b	£9.99

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Twin Speed SCSI CD ROM	£110.00	d	£129.25
Quad Speed SCSI CD ROM	£220.00	d	£258.5
External CD Box & PSU	£65.00	c	£76.38

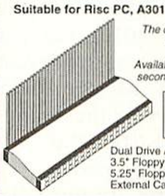
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	Ex Vat		Inc Vat
14" SVGA Monochrome	£79.00	d	£92.83
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Acorn AKF52 Med Res Colour	£200.00	e	£235.00
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Suitable for Risc PC, A3010, A3020 & A4000.



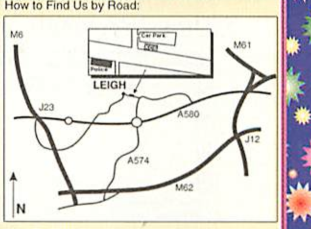
The dual drive adaptor is very easy to fit.

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REVIEW

Money talks...

...but Prophet 2 speaks for itself as the world's most innovative accounting package, as Alex Singleton found out.

So you want to run a business? Well, the first thing you'll need is an accounts package. Back in the February issue, we reviewed *Enterprise Accounts*, an overhauled version of *MicroTrader*. Now, *Prophet* from Apricote Studios has likewise been extensively enhanced. The features, interface and version number have all increased.

Whereas *Enterprise* is a traditional non-editable, double-entry accounting package, *Prophet 2* offers a different approach. Apricote claims that *Prophet* is 'aimed at the non-accountant' and 'will not baffle you with jargon'.

User interface

Essential to an accounts package is a clear user interface. I would give version one of *Prophet* about nought out of ten and version two ten out of ten.

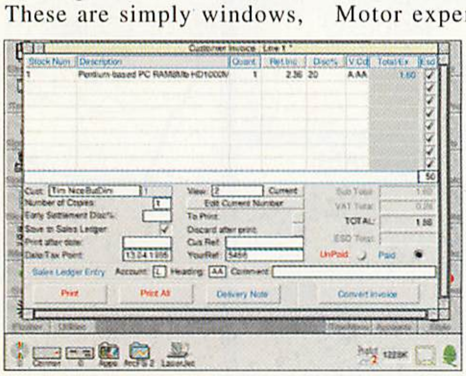
Upon loading, an icon appears on the icon bar in the usual way, after a rather neat loading screen. Clicking on the icon brings up a menu window, and from this window all the main features are accessed. Many of the other windows have button bars, allowing easy access to relevant features (such as the calculator). However, these are all text-based instead of being graphics-based.

There are three 'ledgers' – sales, purchases and bank. These are simply windows, into which entries are entered. For instance, all your sales are entered into the sales ledger. Most accounting packages are card-based, showing only one entry at a time, but *Prophet* lists them down the screen, a little like a spreadsheet.

Entries in these ledgers are editable at all times, and I realise that many readers will object to being able to correct mistakes easily as it can allow other people to adjust entries without any trace. But for most people, this isn't a problem – passwords can optionally be put on different parts of the program.

These ledgers are each linked to a database – customer, supplier and bank accounts. There is also a stock database. Taking the customer database, for example, it is here that all your customers' names, addresses and so on are entered. Although the version of *Prophet 2* I am using for the review will not tone-dial telephone numbers like in *DataPower* (see the Business page for an explanation of how this works), by the time you read this it should have been implemented.

Like all the other popular accounting packages around, there are sales and purchase headers which allow you to categorise entries. You may not realise what an entry to Joe Public Ltd is to do with, but if it is under a heading – like Motor expenses – you can. What's more, *Prophet 2* also has sub-headings (like petrol, for example).



Quite unlike traditional accounting packages, both past and present invoices can be viewed.

There are no period end routines where entries are deleted which can prove quite tedious to many people. Instead, at the year-end or whenever, *Prophet* can create a new file with all unpaid entries and customer/supplier details.

Everything I can think of has a keyboard short-cut, from closing windows to selecting radio icons. This is one of the many features which makes *Prophet* so pleasurable – data entry is so quick. Drag-and-drop is also implemented, and furthermore, in the ledgers there are many time-savers. For example, leaving the date field blank copies it automatically from the previous entry. For some unknown reason, in the supplier/customer ledgers this does not happen in the company/supplier fields. An option perhaps? Did I say 'option'? Apparently, Apricote is obsessed with accommodating different users' working styles.

Data entry

In about a day, I produced a year's accounts for a building company with a turnover of £100,000, which I thought was quite remarkable – particularly as I had never used the package before. Unlike *Enterprise Accounts*, the package does not follow a modular design – it is what it is. Nonetheless, this does offer an advantage. Everything is fully integrated, and every feature looks and feels as if it is part of the package, not something that has been bolted on.

Entries can be typed straight into the ledgers – for convenience, let's take the purchase ledger. This is a small window which allows five entries to be viewed at a time. Disappointingly, the window neither has a vertical scroll bar nor can it fill the whole screen, but Apricote is implementing this soon. Entries can be one of a number of states: unpaid, part paid, paid, over paid and reconciled, and the entry can be toggled between each of these at whim. In case you're wondering what the term 'reconciled' means, the idea of it is that you compare your bank statements with what's in *Prophet* and check whether cheques have been cashed. The ones which have should then be reconciled. If, like me, you prefer to reconcile entries from a report rather than the screen, *Prophet 2* has a very useful feature which allows you to reconcile all entries in an account.

But what about invoices and purchase orders? Surely these can't be entered into a ledger? Instead, these are entered into invoice and purchase windows which are virtually identical. The invoice window is displayed in the picture to the left, and you enter the invoice details in the window, select how many copies you want and it prints it. The data is sent to the sales ledger. Usefully, past invoices can be viewed with all the details intact because *Prophet* saves an extra invoice file containing details of all your past invoices.

On the subject of data entry, you aren't just limited to a keyboard and mouse. If, say, you're a shop, you can connect up a bar code reader. Apricote recommends users purchase one from Iver Computers, who can be contacted on (01753) 651990.

Other features

Like in other accounting packages, each entry (whether entered directly in a ledger or not) is given a VAT code so that tedious typing in of '17.5%' or '0%' isn't required. Importantly, *Prophet* also allows VAT amounts to be

forced. Why? Because there may be a 1p difference if all the entries in an invoice are added up and then have VAT added to them, as opposed to each individual entry having VAT added to them and *then* added up. It's also useful if just part of an invoice is zero-rated.

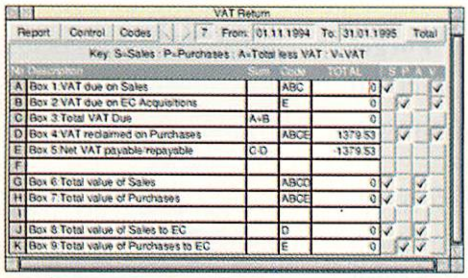
The VAT return window offers a refreshingly simple way of calculating the VAT return. Impressively, the VAT can be calculated, say, half way through a VAT period for your own viewing. Apricote Studios actually had *Prophet* inspected by Customs and Excise for VAT purposes and received the 'thumbs-up'.

Prophet 2 offers a very integrated and sensible approach to stock. Contained in the Stock database is, unsurprisingly, all of your stock. This has links to the supplier database as the program needs to know who your suppliers are in order to print purchase orders when the stock level of a particular product is low. Meticulously, *Prophet 2* takes note of the fact that companies can have a number of suppliers for a particular product and caters for these.

The profit and loss part of *Prophet* has had a terrific overhaul. Previously, Apricote described it as 'programmable.' Similarly, Longman describes *S-Base 2* as 'programmable.' From my experience, anything using that word is a total pain to use. However, in *Prophet 2*, the work in compiling the profit and loss is done for you. It still retains all of its flexibility too.

Import, export and reports

Enterprise Accounts has its own integrated payroll module – *Prophet* does not. But help is at hand from those intelligent folk at Silicon Vision. If you own a copy of Silicon Vision's



Prophet 2 **– as approved by Customs and Excise for VAT purposes.**

Payroll Manager, you can export data directly into *Prophet 2*, so the customer, supplier and stock database can now import data in CSV format (e.g. from contact managers and databases).

Exporting data and printing reports from *Prophet 2* are both possible, though there is no format language as in *Enterprise*. Exporting data can be in either CSV, TSV or plain text, and printing can be done using the printer's in-built typefaces (for speed) or the computer's outline fonts (for quality). Label printing from the supplier and customer databases is very helpful; nevertheless, there isn't an integrated contact manager like in *Enterprise Professional*. *Prophet* has a number of DTP windows provided for designing invoices, purchase orders and the like. These are frame-based, and a backdrop (probably containing your company logo) can be loaded in as a *Draw* file. My only real criticism of the reporting facilities is that ledger reports are always sorted into date order, which meant that when I wanted a report by reference order I had to export it into *DataPower*.

The competition

Traditional in style, *Enterprise* is *Prophet 2*'s main competitor. *Enterprise* is very similar to *Sage Sterling* (for the IBM PC), though it has a superior user interface. Its main weakness – of which I have commented on in the past – is the surprising lack of keyboard shortcuts, which would be a significant time-saver. On the other hand, *Prophet* is probably the most keyboard-friendly package I've ever come across. For example, pressing Escape closes the window being used – why can't more programs do this?

Surely interactive help should be essential to an accounts package, but no, none out of *Sage Sterling*, *Enterprise* and *Prophet* support this. Why?

On the entry side of things, *Prophet* has some significant differences to *Enterprise*, *Sage* and the like. Everything is editable, which means that when, for example, you type in an invoice and enter the wrong date, you are able to correct it later. Naturally, if you make an error in an invoice which has been sent out, you should print out a credit note, rather than simply modifying the existing invoice.

Prophet simplifies the process of accounting using a computer – there is no journal for example, so you merely correct errors. Also, there are no period end routines where entries are deleted. For reports on any period of time, dates are simply entered into a dialogue box, which is an infinitely simpler procedure.

Sage, which produces PC accounting software, has a large market share in the UK. So why don't I use *Sage Sterling*? After all, it is installed on our company's hard drive (it cost enough too). It is nowhere near as intuitive as *Enterprise* or *Prophet 2*, and it is also less responsive. I have used *Sage* for the accounts, but it just causes grief. In short, everything *Sage Sterling* can do, *Prophet 2* can more easily.

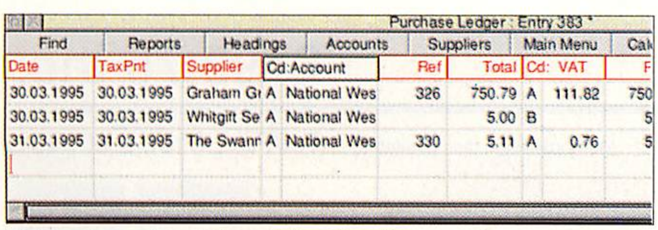
Now that *Prophet* has had a major overhaul, will *Enterprise* be able to compete? Yes, it will. The first people who will buy *Enterprise* are accounting purists – those who believe that entries should be 'posted' and never seen again. The second group of people are larger businesses who need the forthcoming *Enterprise* modules for network accounting, and so on.

As far as the price is concerned, *Prophet 2* offers tremendous value for money. If you want stock from *Enterprise*, be prepared to pay about £100 more. As for *Sage Sterling*, it is highly-priced and comes with odiously-priced telephone support.

Conclusions

I would recommend *Prophet 2* to anyone running a small business. By that I don't mean some little toffee shop – it is perfectly appropriate for multi-million pound companies. However, ACP claims it is going to introduce a network version of *Enterprise* which will cater for very high-end users like large mail-order companies.

Prophet 2 is just so innovative and flexible – it doesn't have any irksome period-end routines which print a report and then delete all the entries. I love the spreadsheet appearance as all other accounting packages make you type into a dialogue box you never see again. *Prophet 2* is ridiculously easy to use, whether you're an accountant or just an end user, like me. AU



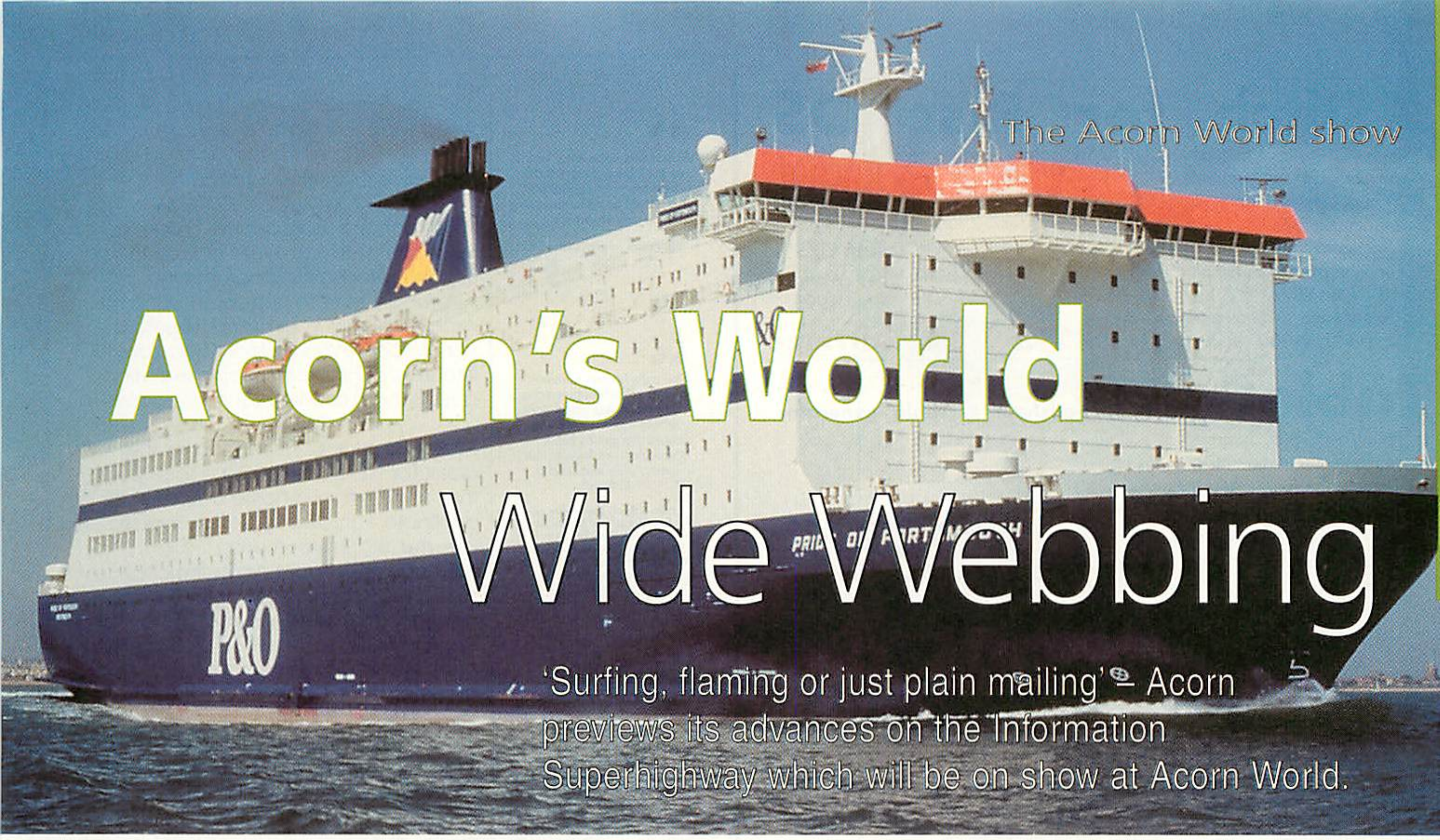
It's from the purchase ledger window that all your purchases are entered, one after another.

Product details

Product: Prophet 2
Supplier: Apricote Studios
Tel/Fax: (01354) 680432
Price: £170 + VAT

Pros: Editable • Comprehensive keyboard short-cuts • Improved interface • Fast • Small learning curve • Button bars • Saves outside application

Cons: No vertical scroll bar in ledger windows • Reporting only in date order • No interactive help



Acorn's World Wide Webbing

'Surfing, flaming or just plain mailing' – Acorn previews its advances on the Information Superhighway which will be on show at Acorn World.

Come along and see the world through a monitor screen – just a few mouse clicks can get you there.

In support of this year's show theme, 'Information Superhighway', the Acorn group will be parading an exciting range of new developments, including Online Media's set-top box technology, which is designed to access the networks and information opportunities which this new 'broadband age' is opening up. From a look at some of the dramatic demonstrations at Wembley, you will be able to appreciate just how capable Acorn equipment is, and how far reaching this new technology will become. So, whether you're web-wondering, or already web-wandering, get on down!

Software on display

There'll be a demonstration of *Intertalk*, Acorn's e-mail and newsreader product for on-site communications which gives full Internet access.

This will show how online costs can be kept to a minimum, while fully utilising the freedom which Internet access provides. This exhibit will be the largest public demonstration of the Acorn *Intertalk* World Wide Web (WWW) browser, and of the range of mail and news packages available on it. It will feature full drag-and-drop interaction, and a host of sites will be accessible from the show.

You'll also be able to see Web browsers and Internet suites from third party developers, including Freeware packages such as *KA9Q*, *ArcWeb* and *Webster*, showing RISC OS and Risc PC multiprocessor-based Internet access.

New ideas based around wide area networking with examples of ongoing projects from the Acorn community will be on show. As the world enters the age of cyberspace, see how well advanced Acorn's technology is in linking with the Superhighway.

Online Media

Emphasising Acorn's commitment to future developments, Online Media's set-top box will demonstrate the rapidly-emerging technology which is set to provide integrated home services – using your TV for home banking, shopping, videos-on-demand, news services and educational programmes, plus access to games.

Through set-top box technology, all this can be achieved in a fully interactive way, so that the user can control the sequence and range of activities available through broadband technologies like Asynchronous Transfer Mode (ATM). Acorn group personnel at the show will be able to answer any questions about this revolutionary box of tricks which will shortly be in all our living rooms.

Something for everyone

Whether you're curious, confused, or standing by in eager anticipation at the prospect of getting on the Information Superhighway, Acorn World '95 will be your best chance yet to get up-to-speed.

A good place to start will be to log into Acorn's Web site at the show, for an electronic guide to all the action. Current users of the Internet will have an opportunity to create local news groups, send mail from the show, and perhaps to meet in person those they've met (and hopefully not 'flamed' ;-) on the net. AU

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Booking forms are available in the P&O European Ferry Guide for the Portsmouth to Le Havre line. All completed forms should be sent to P&O Ferries, Local reservations, Penninsular House, Wharf Road, Portsmouth, PO2 8TA.

P&O European Ferries

*This offer is available to new bookings only on the Portsmouth to Le Havre service. The offer can not be used in conjunction with any other promotional offer. No refunds available. Travel must be completed by December 1995. All travel is subject to availability and the carrier's terms and conditions, copies of which are available on request



Snapshot of history

Pete Worrall explains the thinking behind and the production of the Photo CD which accompanies the Black Country museum.

The Black Country Photo CD is the result of a successful collaboration between Sandwell's Education and Microtechnology Unit and the Black Country Museum. The disc contains 98 high-resolution pictures arranged as a gentle walk around the museum, accompanied by an informative 12-page booklet acting as a guide. It is hoped that this relevant historical resource will support and encourage exciting new National Curriculum projects in many primary and secondary schools.

For those who haven't visited this unique museum, it occupies a 26 acre site in the West Midlands and contains a turn of the century Black Country village complete with a mine, tramlines, shops, pub, silent cinema, school, fairground, ironworks, a rolling mill and canal system. It is a remarkable educational resource for the thousands of school children who visit each year, because most of the museum buildings have been reconstructed brick by brick from sites within the West Midlands, are in working order, and contain a wealth of original artefacts. The museum staff dress in traditional costume and act as guides for visitors.

The disc took less than 12 months to produce and I am pleased to report (without bias) it looks absolutely great. Why bother with Kodak Photo CD I hear you ask? Well, mainly because it is platform-independent, so it is possible to view these pictures through most computer systems (especially Acorn) with a CD-ROM drive and Kodak Photo CD access software. Furthermore, the pictures can be viewed at different base levels so it is possible to cut out at least 300 high resolution details depending upon what you want to do.

Behind the scenes I began by taking about 200 photographs of the museum and shortlisted 60, mainly on the grounds of good composition and lighting. The rest of the photographs were selected from the museum archives. Our final selection (in slide and negative format) was then carefully documented and taken to Cambridge Digital Imaging Centre to be scanned onto a master disc which cost approximately £700.

The next stage involved the cover design and booklet. We decided to use the Turner painting showing Dudley Castle from Tipton Canal as the front cover of the CD and booklet, with the back cover showing four different shots of the museum. Ian Walden (Museum Director) wrote the historical commentary for the booklet. Proof reading the text including instructions, credits and copyright was the most time-consuming part of the venture. I used *Ovation DTP* to organise and print out the cover before sending the disc, text, printouts and copious instructions to Wyvern Typesetting in Bristol who produced the films for printing purposes. Nimbus Information Systems in Cwmbran did the rest by cutting a glass disc from the master for replication, printing the cover and booklet from the films for approximately £1200. So right on cue early in March, we received 500 discs in their shiny jewel cases.



The Photo CD for the Black Country museum contains a wealth of different images.

The disc really represents the top layer for research and it will be up to imaginative and enthusiastic teachers and pupils to dig deeper in true Black Country mining tradition, using the disc as a starting point. Teachers planning a visit to the museum will also be able to use the disc to structure their work in advance – there is even a ground plan of the museum to get your bearings and print out. Among the many unique views on the disc are ten paintings, including one by the famous 19th century artist Turner showing Dudley Castle from Tipton Canal, circa 1830. The fairground rides, village shops, colourful painted boats and stark mining shots often include people in authentic dress.

The pictures are arranged thematically and it is intended that they will act as a support for multimedia development. During the summer term, seven postgraduate students from the University of Central England will be producing supplementary visual, audio and video-based disc material as a further development to the disc, so the chainmaking process will be filmed and should end up as a Replay file, the fairground music will soundtrack some of the rides, and the world's first steam engine will be animated into action. This will all end up as a *Genesis Professional* stack and demonstrated to visitors in the museum at the end of June.

Every picture on the disc tells a story to be developed in the classroom, but even for the casual visitor 'it's bostin' good fun' as they say in the Black Country. What's more, where else can you take the museum home with you? AU

Product and contact details

Product: The Black Country Kodak CD
Supplier: Sandwell's Education and Microtechnology Unit
Tel: 0121-544 2001
Address: Popes Lane, Oldbury, West Midlands B69 4PJ
or
Supplier: The Black Country Museum shop
Tel: 0121-557 9643
Price: £20 + VAT

REVIEW

In brief

Under scrutiny this month:
Logitech Audioman • Equate



AudioMan comes with a Windows utility to sample from the built-in microphone.

Logitech Audioman

Supplier: Desktop Laminations (CD-Circle)
Tel: 0117-979 9979
Price: £85 (£75 to CD-Circle members) no VAT

Pros: Brings sound to Windows 3.1 • Easy to install in the printer port (dongles and printers still work) • Comes with integral microphone and recording software
Cons: Not Soundblaster compatible • Only 8-bit mono sound • Cannot be used with printer port CD-ROM drive

One of the main problems with the 486 co-processor in the Risc PC is lack of sound. Full 16-bit stereo Soundblaster capabilities have still not arrived, but into the breach has stepped the Logitech AudioMan, supplied by Desktop Laminations. This combined speaker and microphone – shaped like a microphone for a '70s intercom – plugs into the parallel port and adds 8-bit mono sound to Windows. Printers and dongles seem to work fine with the AudioMan plugged in, although unfortunately, Cumana's Oscar parallel port CD-ROM drive doesn't.

Obviously this add-on is no use to *Doom* fans, as this – and most other games – will need a sound card that emulates a Soundblaster and works from DOS, but anyone struggling with the multimedia and educational CD-ROMs is in for a pleasant surprise. It certainly made me jump the first time I fired up Windows with the AudioMan installed, to be greeted by its little start-up warble.

Suddenly, previously dumb software began to find its voice. Several point-and-click demos became much more understandable with sound added – many multimedia presentations are totally incomprehensible without audio cues. Anything that uses Windows 3.1 sound should be able to play through the AudioMan – certainly everything I tried worked.

The other side of the coin is recording. AudioMan comes with a built-in microphone, and there is a Windows utility to record from it, which is not something the Acorn software and hardware is likely to support at all. Jack sockets for headphones and a microphone are built-in, and you can also attach another sound source such as a CD player to the microphone socket. Samples can be easily attached to *Word*, *Write* and *Excel* documents to provide audio 'annotations'.

Installing AudioMan is simplicity itself. You plug the hardware into the printer port and install the software from the installation disc provided, and away you go. You don't even have to take the lid off the computer. Also supplied is some software improbably called *Icon Hear-it Lite* which brings extra sound, animations and screen savers to your Windows desktop.

Desktop Laminations is working on a better version of the AudioMan which will offer 16-bit stereo Soundblaster sound and will run from DOS as well as Windows. Avid games players would perhaps be wise to wait for this (or for the Acorn solution), but anyone needing sound from Windows should buy AudioMan now. It works, and it's here now, which is more than can be said for the other promised solutions. Desktop Laminations is not VAT-registered, but if they sell many of these (and I expect that they will) that state of affairs may soon change. Get your orders in quickly.

David Matthewman

Equate

Supplier: PTW Software
Tel: (01329) 281930
Price: £17.95 inc VAT

Pros: Plots equations on cartesian or polar grid • Will plot several equations on a graph and find the intersections • Can handle equations up to Further Maths level
Cons: No logarithmic scale • OLE with *Impression* not supported • All analysis is only approximate

This program, while designed for pupils from Key Stages 3 and 4 through to A-level, will appeal to any recreational mathematicians out there who enjoy playing with equations. It lets you enter one or more equations, which it plots on a graph, allowing you to perform simple analysis on the equations.

Equations can be entered in cartesian, parametric and polar forms, which may be mixed on the same graph. Both polar and cartesian axes are supported (although sadly not with logarithmic scales), and most aspects of the graph can be altered. These include the colour, line thickness and dash-pattern of the lines associated with individual equations; this is used to good effect in one tutorial in the manual which draws a smiling face.

Once graphs have been drawn, a limited amount of analysis may be performed upon them. It is important to realise that this is done in a similar way to using graph paper and a ruler – the answers are approximate 'by eye' ones. For instance, to find the gradient of a line the program takes a point slightly ahead of the current one on the graph and works out the gradient of the line joining the two points, rather than differentiating the equation. This is not really a criticism, because proper analysis is not something I would expect low-price programs to do, and the answers *Equate* obtains are accurate enough for most purposes. Points of intersection, tangents, and the coordinates of any point along the line can be found, with increasing accuracy as the graph is zoomed in.

Graphs can be saved as *Draw* files and printed using the standard RISC OS printer drivers, as well as saved in their own format. The manual is excellent – clear, with useful examples and honest about the program's limitations.

I have no doubt that teachers will find *Equate* useful for demonstrating the behaviour of mathematical functions, and I could have done with it during my Engineering degree to help with all those polar plots in Control theory. Logarithmic graph scales would be useful, though at £17.95 all inclusive I can't really complain.

David Matthewman

David Matthewman talks to Mark Smith, who recently made a lot of game-playing Risc PC owners very happy by writing Game On! However, you may know him better for his earlier work...

I wrote that...

Which piece of Archimedes software has sold the most copies? Unlikely though it may seem, there is a program of which there are more copies than there are machines to run it. You will probably have bought several copies this year – over 40,000 were 'sold' in the month before Christmas. It's on every magazine cover disc, it's called *ArcFS*, and Mark Smith wrote it.

Five years ago, the state-of-the-art archiving and compression program on the Archimedes was called *Spark*. *Spark* was written by David Pilling and was much used by people to gain those precious few extra K of space on the 800K floppies which were the usual storage medium at the time. Even if you had a hard disc, by the time you'd put on to it your *System* modules, fonts, *Draw*, *Edit*, *Paint*, *Configure*, *Alarm* and your favourite PC disc reader (none of which were in ROM in the good ol' RISC OS 2 days), your poor 20Mb Western Digital was already creaking at the seams.

Direct data access

The one disadvantage with *Spark* was that you couldn't run the files which were within the archives. They had to be de-archived by copying them elsewhere first, because *Spark* did not offer the full facilities of a filing system – which is still the case with the read-only version *SparkPlug* today.

'I mainly had some soundtrackers that I'd archived,' explains Mark, 'which were quite long, and it was a pain to have to copy them out of the archive to use them. So I thought I'd write a filing system to get at them directly. It was something fairly small and straightforward – a basic filing system with some de-compression code.'

Not everyone would call the task of writing an entire filing system 'small and straightforward', but Mark knows of what he speaks, having already written a DFS-compatible filing system about which he says: 'It never really went anywhere, but taught me how *not* to write a filing system.'

As luck would have it, Mark finished the first version of *ArcFS* just as the first Acorn magazine started having a regular disc on its cover. At the time, *ArcFS* could only read archives, but of course this was just what was needed in a cover disc – it made it harder for anyone to accidentally change the contents.

'I looked at the disc, and found out that they were looking for exactly the same sort of thing to use on their cover discs that I'd written, so I sent it in to them and it sort of went on and grew from there. 'I had a letter not long after from David Pilling, and he suggested that I should write a full read/write version. The following summer (1991) I'd finished my A levels and had the time to do it, and by the end of the summer I had a fully-functional compress/decompress archive filing system.'

Switching companies

For about the first year, *ArcFS* and the full-blown system, *ArcFSr/w*, was sold by David Pilling, along with *Spark*. However, neither Mark nor David was idle; Mark was working on the improved version, *ArcFS 2*, and David was set to release *SparkFS*, a similar full-blown filing system.

'I wanted to sell *ArcFS 2* for a bit more and to get more out of it, and David had been working on *SparkFS*, so we decided I would take *ArcFS*



REGAN

Mark Smith started programming on the ZX Spectrum in the early '80s, buying himself the Assembler and Disassembler and programming on Z80 machine code. His father, a schoolteacher, kept tempting him back to the true path by periodically bringing a BBC Micro home from work, but it wasn't until the A3000 that Mark got his first Archimedes to program.

With its built-in BASIC and Assembler, Mark believes the Acorn is an excellent machine to start experimenting with programming.

elsewhere. As it happened, Software 42 – who were just starting up at the time – had shown an interest in it, so they took it on and sold it for the next year.'

The members of Software 42 went on to University. This happens a lot in the Acorn market – talented programmers going and spoiling it all by getting themselves into higher education – and most of their software was sold to Vertical Twist, who as VTi – apparently the old name had 'dated', a likely excuse – sells the software to this day. With a couple of thousand copies sold, *ArcFSr/w* isn't quite as prolific as its read-only parent, but that's still a respectable number for a program as specialised as it is.

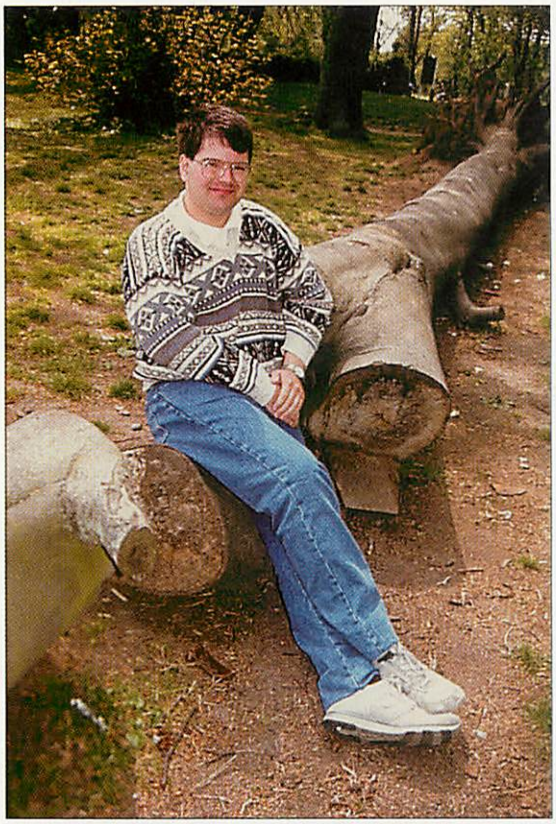
The ArcFSArc filetype

ArcFS archives as written by *ArcFSr/w* are not the same as *Spark* archives. *Spark* archives have a header for each file, with information such as filetype, name and so on immediately followed by each file's data, block after block. *ArcFS* archives, on the other hand, have the whole catalogue stored at the beginning of the archive. As Mark explains:

'That makes it much faster when you first want to look at the contents of the archive and get out the information about what's there to display a catalogue of it. That was the main advantage – it also made it easier when it came to writing a version that could write to archives.

'For a while, my format was using the same filetype (Archive – &ddc) as *Spark* archives. A lot of people then said: "We want to be able to access *ArcFS* archives with *ArcFS* and *SparkFS* archives with *SparkFS* or *Spark*," so I then introduced a new filetype (ArcFSArc – &3fb) so that each application would handle its own filetype.'

REGAN



Mark is studying Electrical and Electronic Engineering at Brunel University in Uxbridge – coincidentally a stone's throw away from Irlam Instruments. He is on the ARM Club committee, overseeing the marketing and licensing of its software, seeing the software side of the club as having an increasing role. It makes good software available at affordable prices, makes a little money for the club to allow it to attend shows, and persuades software writers with good software to market it to the people who want it.

This is a subject close to our hearts at *Acorn User* as we have, until recently, been using an old version of *ArcFS* on our cover discs in deference to RISC OS 2 users, as we have been unable to get the later version to work with RISC OS 3 (though we have now changed over). Although Mark doesn't immediately see why the new version should behave any differently, he agrees that the RISC OS 2 behaviour is different. 'It's different in all the versions. Under RISC OS 3 it works as an image filing system in a similar way to the DOS partition, in that it appears like a directory. Under RISC OS 2 it can't work that way, so it isn't quite so straightforward to use.'

Assembler again

Because of considerations of both speed and size, there was never any doubt about the language *ArcFS* would be written in; Assembler. The compression and decompression routines are carefully hand-coded to be as fast as possible.

'One of the nice things about ARM Assembler is the ability to make all your instructions conditional, which minimises the branching in the code. ARM Assembler was designed to be hand-coded, which isn't always the case with other RISC systems.

'Assembler was the obvious thing to write it in at the start, as the program was small and manageable. Mind you, with the BASIC Assembler you have to be very careful with label names, structuring them so you don't end up using the same label more than once.

'David Holden recently sent me a copy of his Assembler package, and I might convert it across to use that at some point. His is based on the BASIC Assembler, but it allows you to start splitting up your files, using macros and so on to make the whole thing easier to maintain.'

On with the games...

As a registered developer, Mark got an early look at the Risc PC: 'When I saw the documentation, I saw that Acorn had allowed for people to write code to emulate some of the aspects of the older machines. I realised that things like games were not going to work straight off, and saw the need for software that would emulate aspects of the VIDC and the MEMC games tend to rely on. I got a few ideas together, tried them out and found that they worked; they became the modules for *Game On!*. Andi Flower then wrote the front-end code for it.

'The market for *Game On!* is a bit limited at the moment, though the number of people with Risc PCs is growing, but if Acorn decides to release cheaper Risc PCs, replacing the A3010, then there should be a whole new market, as the people who buy the cheaper machines will then be the games players.

'In a way, *Game On!* has to be rather hacky – for want of a better word – in its approach, because you've got programs that are trying to write to VIDC1 control registers to change the screen palette or whatever, and you need to emulate that as quickly as possible, and the only real option is to use the VIDC20 equivalent. So, when the VIDC30 or whatever comes out, I'll have to re-write most of it to cope.'

This might take longer than it has in the past; Mark's course at university finishes this summer, after which he has a job lined up programming full-time at Logica. Development on *ArcFS* and *Game On!* may slow down thereafter. AU

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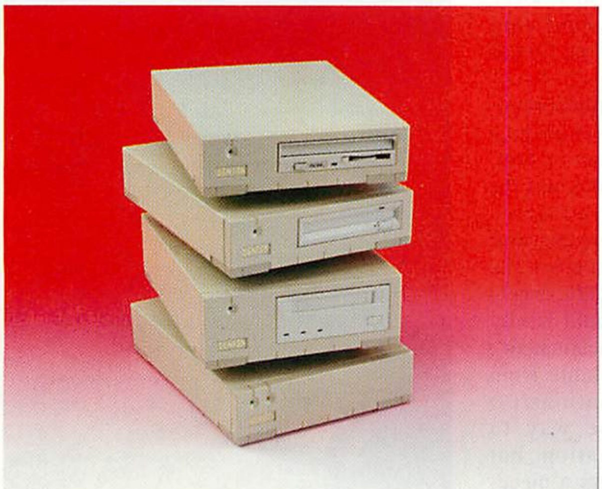
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Letters

Multi-expensive

I read with interest your response in the April Questions & Answers page regarding the use of PC format CD-ROMs on the Risc PC. I am in the same situation and believe there are a couple of important additional factors which need to be considered by a user who has a 5Mb machine.

Take, as an example, the excellent *Encarta '95* CD-ROM from Microsoft. To enable full use of this type of MPC format CD-ROM would require the installation of the 486 card, a Soundblaster-compatible sound card and, of course, the dreaded Windows software. The latter has a voracious appetite for memory and disc space, so the 5Mb user would need to upgrade to at least 8Mb. (The long-time user may also have nearly filled his 210Mb hard disc, so this may need to be upgraded too.) I estimate that to add the extra items required to enable the reading of MPC format CD-ROMs would be around £600, including the CD-ROM drive.

Now, all this is technically possible – at a price – but not yet. Somebody deciding on the options for purchasing a multimedia system might see that the price of the Risc PC is already 50 per cent more than an equivalent PC already equipped for multimedia. Somebody deciding their options *now* would also see that the 486 card is still not available, and neither is the sound card. Then, as you mentioned in the magazine, there is still the issue of incompatibility. Moreover, we 'techies' might be happy to add various bits and pieces to our systems, but most home users want a ready-to-go solution.

All this is very frustrating and leaves Acorn trailing behind in a rapidly expanding sector of the home computer market. As an Acorn user since the BBC B, I spend a lot of time extolling the virtues of Acorn machines over PCs, but how can we Acorn enthusiasts justify this situation to any prospective buyer? What we need is someone like Cumana to market a multimedia package, such as is available for the PC, to include a drive, sound card, and maybe speakers, but at a realistic price (why are PC magazines advertising quad-speed drives for £130 + VAT). Even then, this would only offer access to Acorn format discs.

Admittedly, I have concentrated on the problems surrounding the use of MPC format discs, since this was the subject of the original query, but there is no denying that these greatly outnumber the Acorn discs, which are largely educational and could hardly be described as 'edutainment'. The software available from Desktop Laminations/CD Circle goes some way to relieving the situation, but currently only offers a piecemeal situation, and it is unlikely that publishers could be persuaded to produce Acorn equivalents of the most popular discs.

Ian Morrison
Wirral

Some interesting points, but isn't it a bit harsh to consider using a 5Mb machine for MPC CD-ROMs? In the PC market, an 8Mb machine is recommended as the minimum sensible configuration for running multimedia applications.

The Risc PC solution is more expensive than the equivalent multimedia PC, but it can also run Acorn software – if all you want is a PC then you'd be crazy to buy a Risc PC with a PC card. The beauty of the Risc PC is its integration of the two environments.

Thankfully, the PC card is now generally available, and there are at least two Soundblaster cards coming very soon, including one from Desktop Laminations. Good on 'em. (MM)



Econet: invented on the back of a napkin in a Beefeater restaurant, and available for all pre-Risc PC machines, including the A4 portable.

Shiny, happy Acorn

Back in The Moxon Interview, May 1994, I feel I must agree with some of Dave Clare's comments: 'We're not at all interested in moving into the PC market... there's more money to be made there, but it's not half as much fun as the Acorn scene. We make a living and we're happy.'

The Letters Page of late seems to persistently complaining about Acorn not advertising on television and taking on the PC market. But is this what we really want? If Acorn became a large company, wouldn't a considerable amount of what's attractive about the Acorn market disappear?

For instance, many Acorn-related companies only have a few employees so when you phone them for support, you get personal contact every time. In the PC world you phone some large company and this just doesn't happen. Some companies employ hundreds of people in their telephone support teams, and all this costs money – so they charge for support.

Is it not more fun to support an enthusiasts' machine – one which very few people own – rather than a boring industry standard? Acorn is the company that invented Econet on the back of a napkin in a Beefeater restaurant. It's a tiny company in comparison to IBM and the like. Now, in 1995, Acorn still produces the best computers in the world. Acorns are the standard music composition machines. Online Media has earned international recognition – I hear now that Microsoft is joining the OM pact.

So stop criticising Acorn. Acorn may not have the funds to advertise its machines but, with some help from its loyal supporters – the sort of people who read *Acorn User* – it could do some good. For me, whether it takes over the world or not, I don't care. What matters to me is the Acorn 'atmosphere' which simply does not exist anywhere else.

Alex Singleton
Surrey

Too right. That's why most of us are in this business, why programmers can come up with the likes of *Sibelius*, and why the Acorn market survives while Commodore and Atari go the way of too many computer companies. We're lucky on this marketplace, and it's healthy to remember that. (MM)

Demos mean sales

I have never written to any magazine in the past but felt compelled to do so on this occasion. Having been an avid Acorn enthusiast since the days of the BBC B through to the Archimedes and now the Risc PC, I was delighted to read in the March issue that you would be bringing out an *Acorn User* Collector's CD-ROM disc on the April issue.

This news spurred me on to purchase a CD-ROM drive which I did approximately a week before the April issue was released.

I was amazed at how much software was crammed onto this one disc, and enthusiastically went through the demos supplied. Software writers should note that as a direct result of these demos, I purchased three different programs which otherwise I would not have done.

The ability to download software from the CD-ROM drive was also an excellent idea, and I would welcome more software developers considering this approach in future releases of *Acorn User* Collector's CD-ROMs (yes, editor, that is a plea for more of these excellent discs). I, for one, would happily pay extra for a repeat of this quality item.

Ernie Faulkner
Middlesex

Praise indeed. The latest on the cover CD-ROM is that we *will* be doing another, though when has not been decided yet. Quite what we'll put on it is another matter – if you have any suggestions, do drop us a line.

It's also satisfying to see that the concept of a cut-down demo *does* sell more software. With most software it's simply a matter of disabling save and print options (for example) so let's hope that programmers continue to produce demos. For one thing, it'll give us something to put on the next CD-ROM... (MM)

Arms race

Once again, it would appear that Intel has opened the gap on ARM Ltd in the race to provide complete solutions. This time it is in the field of central heating. For not much more than the price of a Risc PC 486 card, Intel will provide you with a fan heater on a chip (the Pentium Overdrive processor). Fitting such a device to a laptop revolutionises the concept of the mobile office which can now be heated.

Not content with this latest development, Intel is developing the P6 replacement for the Pentium. This worthy successor has 5.5 million transistors, dissipating an impressive 20 watts (plus a 15 million transistor 256K cache)! Currently, there are no plans for a 5V version of the P6 which would be capable of turning 40 watts of electrical power into heat. Perhaps Intel is worried that such an effective heater may cause spontaneous combustion of the enormous *PC Shopper* magazine if the unit is left switched on in the same briefcase. But I ask you, 'who would care?'

Motorola and IBM are not far behind with the PowerPC 601 at 8.5 watts, and have recently announced forthcoming 15 watt versions. ARM Ltd, on the other hand, has been left floundering by these latest developments. Its latest offering, the ARM610, can't even generate a miserly 1 watt of heat. Hardly enough to warm your fingers as you type.

Les Dundon
Woking

Les' letter goes on to say how excellent the ARM processor is, but I thought the above summary of chips and their relative consumption was spot on. You could say ARM is being left out in the cold, but it wouldn't be a very good joke. (MM)

Viewpoint

So, another *Acorn User* Spring Show is over. Although I'm probably biased anyway, I came away from Harrogate with a new optimism about the Acorn market. Don't ask me why, but for some reason this year was one of the most upbeat shows for some time.

But aren't all Acorn shows upbeat? No way: last year, at Acorn World, every other person was moaning about how late the PC card was, how many sales were being lost, how behind the competition Acorn was in terms of Internet presence and cutting-edge operating systems technology, what a farce the Clan was, and so on and so on. If hell hath no fury like a woman scorned, then hell's got nothing on an Acorn user who feels he or she's been let down.

So the spring show was delightful, because everyone was genuinely happy about the Acorn situation. The PC card is available in reasonable quantity; Acorn announced its World Wide Web pages at the show; there was a Risc PC an early prototype of the multi-processor board, running TAOS among other operating systems; the Clan was giving freebies and discounts to members, and has been providing members with interesting and regular newsletters and goodies; yes, Acorn has got its act together in a lot of areas that weren't quite so hot at Acorn World.

The other favourite area that Acorn users like to worry about is the migration of Acorn companies to the PC platform. I've touched on this subject before in Viewpoint, but there's an interesting development I've noticed since defending Computer Concepts' decision to produce *Xara Studio* for the Windows platform. Computer Concepts now has serious competition in a lot of areas.

Take *Impression*, for example. When I first started out in the Acorn market, I used Beebug's *Ovation* – after all, I was working for *RISC User*, so the choice was obvious. *Ovation* sufficed for writing letters, but I didn't use it for anything more complicated. When I moved to *Acorn User* and we produced whole magazines on the Archimedes, it was obvious that *Ovation* simply wouldn't be up to the job.

However, *Ovation Pro* is just round the corner. Even in its unfinished state it looks very impressive, as anyone who saw it at the show will testify. It already looks like it can beat *Impression Style* at its own game, and it's gunning for *Publisher*. And one very important advantage *Ovation* has over *Impression* is that it is a new product, and will be developed and supported properly after its release. Anyone who has bought *Impression* will know that development has ground to a halt.

And what about other areas of the market? Direct drive laser printing is now dominated by Calligraph, as CC has had to drop its Canon range of LaserDirect printers. The Faxpack can now be replaced by a cheap modem and David Pilling's excellent *ArcFax*, and if you need an internal modem, Beebug has plans to release one later in the year. Scanners can be bought from a number of suppliers. The same goes for CD-ROM drives. The Eagle M2 multimedia card is only as good as Irlam's 24i16. *MacFS* is great, but so is Oregan's *AppleFS*.

There *are* areas in which Computer Concepts is still the major player, such as the vector graphics arena with *ArtWorks*, and fast printer drivers. These areas could be hit by CC's obvious lack of interest in the Acorn marketplace, but there are plenty of companies out there who will fill the gap. If someone had told you two years ago that Pineapple Software – purveyors of virus software and digitisers – and Spacetech – astronomy and satellite experts – would be big players in the professional photo retouching market, you wouldn't have believed them. But both companies have provided excellent products, and have become major players in this market.

So, perhaps the new optimism stems from faith in the companies who are staying in the Acorn market. Computer Concepts is still an important company, but if it continues to ignore the needs of Acorn users, then there are companies who can fill the breach. My advice to CC is not to forget the market in which it made its fortune: who needs companies that don't develop their products when there are plenty who do?

Mark Moxon

You are a winner

Geoff Preston announces the results of the Acorn User schools' competition.

Competition winners:

Category A: St. Barnabus' School, Darwen

Category B: Eskdale School, Whitby

Category C: Sedgefield Community College

Thank you to all those who took part in the Schools Competition. There weren't as many entries as we'd hoped for, but there was still a good response. The standard was very high, especially from the lowest age group.

A big thank you also to all the sponsors who gave prizes and to all those who entered.

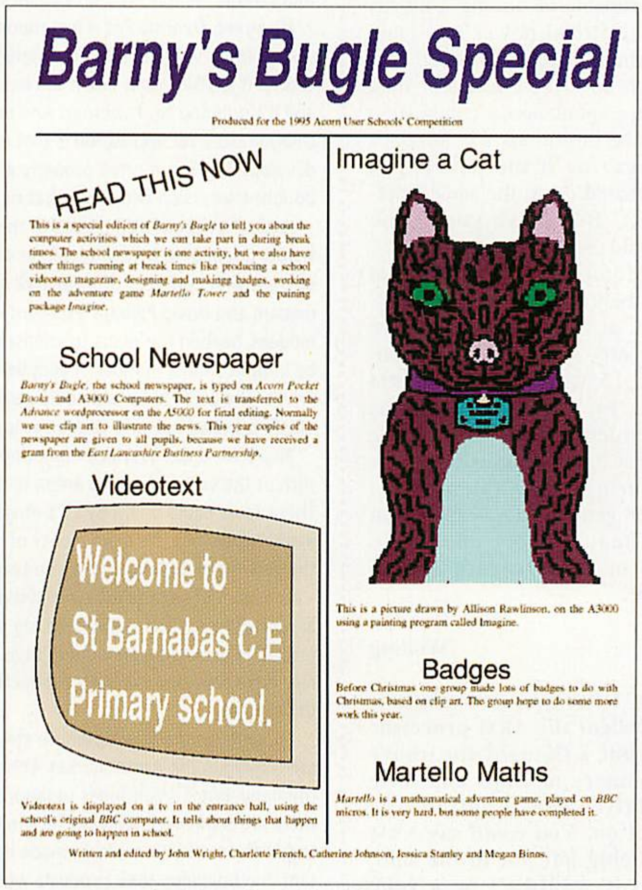
This is what they won:

Category A

The first prize went to St. Barnabus's School in Darwen who put together a very creditable piece using *Draw*. It just goes to show, you really don't need all the bells and flashing lights to produce some quality DTP. But life is so much easier when you do, so I trust St Barnabus's next entry will be even better in light of the prizes they receive this year.

The prizes are: *Impression Style* or *ArtWorks* from **Computer Concepts**, *Spex* including *Moonbase*, *Street*, *Classroom* and *Home Environment* from **Aspex Software**, a one year unlimited direct-dial free access to the **Silicon Village**, a modem from **John Clarke Computing Ltd**, *Music Box* from **Topologika** and *KeyStroke* from **Quantum Software**.

The runner up was Alverthorpe St. Paul's School who submitted an entry by Laura Slater and Kirsty Hatfield on a subject very close to my heart – girls and Information Technology. Alverthorpe St. Paul's will shortly receive *Studio24* from **Pineapple Software**, any adventure (e.g. *Granny's Garden*, *Mouse in Holland*, *Flossy the Frog*) from **4Mation**, Software Templates for Avery Laser or Inkjet Labels from **Papersoft**, *The Greeks* from **Hampshire Microtechnology Centre** and *Noddy's Playtime* from **The Jumping Bean Company**.


Barny's Bugle Special

Produced for the 1995 Acorn User Schools' Competition

READ THIS NOW

This is a special edition of *Barny's Bugle* to tell you about the computer activities which we can take part in during break times. The school newspaper is one activity, but we also have other things running at break times like producing a school videotext magazine, designing and makingg badges, working on the adventure game *Martello Tower* and the paining package *Imagine*.

School Newspaper

Barny's Bugle, the school newspaper, is typed on *Acorn Pocket Books* and A3000 Computers. The text is transferred to the *Advance* wordprocessor on the *A5000* for final editing. Normally we use clip art to illustrate the news. This year copies of the newspaper are given to all pupils, because we have received a grant from the *East Lancashire Business Partnership*.

Videotext

Welcome to St Barnabas C.E Primary school.

Videotext is displayed on a tv in the entrance hall, using the school's original *BBC* computer. It tells about things that happen and are going to happen in school.

Imagine a Cat

This is a picture drawn by Allison Rawlinson, on the A3000 using a painting program called Imagine.

Badges

Before Christmas one group made lots of badges to do with Christmas, based on clip art. The group hope to do some more work this year.

Martello Maths

Martello is a mathamatical adventure game, played on *BBC* micros. It is very hard, but some people have completed it.

Written and edited by John Wright, Charlotte French, Catherine Johnson, Jessica Stanley and Megan Binns.

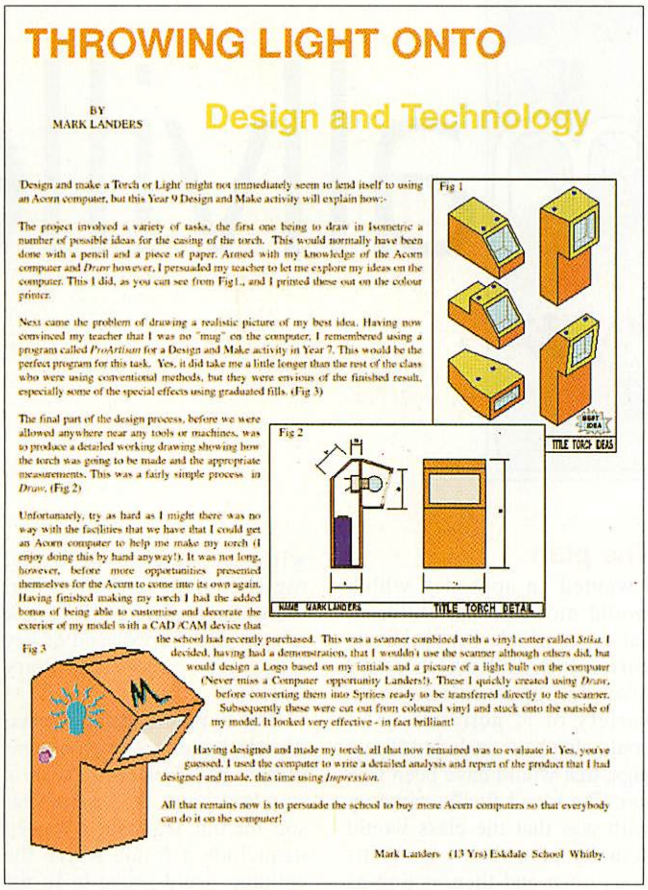
Category A, won by St Barnabus's School in Darwen.

Easingwold School were highly commended, and for their efforts in producing a delightful account of Logo they receive *TalkWrite from* **Icon Technology**, *ImpactPro* from **Circle Software** and *MMViewer/CD*, PD CD-ROMs and a CD-Circle subscription from **Desktop Laminations**.

Category B

This category was won by Eskdale School in Whitby. This page was produced by Mark Landers, and a very good piece of work it is too. Mark wrote about a Design and Technology project and how he used his Acorn computer to help with his designing. For someone so young, his mastery of *Draw* is outstanding. Mark's school receives some superb prizes which sadly, as Mark is at the top end of his school, he won't get much benefit from. Never mind Mark, I expect whichever secondary school you choose, they'll have Acorn computers.

Eskdale School receives a Teletext Card from **DesignIT**, *Impression Style* or *ArtWorks* from **Computer Concepts**, *Spex* including *Moonbase*, *Street*, *Classroom* and *Home Environment* from



THROWING LIGHT ONTO

BY
MARK LANDERS

Design and Technology

'Design and make a Torch or Light' might not immediately seem to lend itself to using an Acorn computer, but this Year 9 Design and Make activity will explain how:-

The project involved a variety of tasks, the first one being to draw in Isometric a number of possible ideas for the casing of the torch. This would normally have been done with a pencil and a piece of paper. Armed with my knowledge of the Acorn computer and *Draw* however, I persuaded my teacher to let me explore my ideas on the computer. This I did, as you can see from Fig1., and I printed these out on the colour printer.

Next came the problem of drawing a realistic picture of my best idea. Having now convinced my teacher that I was no "mug" on the computer, I remembered using a program called *ProArtisan* for a Design and Make activity in Year 7. This would be the perfect program for this task. Yes, it did take me a little longer than the rest of the class who were using conventional methods, but they were envious of the finished result, especially some of the special effects using graduated fills. (Fig 3)

The final part of the design process, before we were allowed anywhere near any tools or machines, was to produce a detailed working drawing showing how the torch was going to be made and the appropriate measurements. This was a fairly simple process in *Draw*. (Fig 2)

Unfortunately, try as hard as I might there was no way with the facilities that we have that I could get an Acorn computer to help me make my torch (I enjoy doing this by hand anyway!). It was not long, however, before more opportunities presented themselves for the Acorn to come into its own again. Having finished making my torch I had the added bonus of being able to customise and decorate the exterior of my model with a CAD /CAM device that the school had recently purchased. This was a scanner combined with a vinyl cutter called *Stika*. I decided, having had a demonstration, that I wouldn't use the scanner although others did, but would design a Logo based on my initials and a picture of a light bulb on the computer (Never miss a Computer opportunity Landers!). These I quickly created using *Draw*, before converting them into Sprites ready to be transferred directly to the scanner. Subsequently these were cut out from coloured vinyl and stuck onto the outside of my model. It looked very effective - in fact brilliant!

Having designed and made my torch, all that now remained was to evaluate it. Yes, you've guessed. I used the computer to write a detailed analysis and report of the product that I had designed and made, this time using *Impression*.

All that remains now is to persuade the school to buy more Acorn computers so that everybody can do it on the computer!

Mark Landers (13 Yrs) Eskdale School Whitby.

Category B, won by Eskdale School in Whitby.

Aspex Software, a one year unlimited direct-dial free access to the **Silicon Village**, a modem from **John Clarke Computing Ltd** and *Navigator* from **Topologika.**

The runner up in this category was Cranbourne School who produced a fine piece of work, and for their efforts they receive *Studio24* from **Pineapple Software**, any adventure (e.g. *Granny's Garden, Mouse in Holland, Flossy the Frog*) from **4Mation**, Software Templates for Avery Laser or Inkjet Labels from **Papersoft**, *Gothic & Medieval Fonts Pack One* from **The Datafile** and *KeyStroke* from **Quantum.**

Arthur Mellows School were highly commended for their piece about computerised music. They receive *TalkWrite from* **Icon Technology**, *MMViewer/CD*, PD CD-ROMs and *CD-Circle subscriptions* from **Desktop Laminations** and *ImpactPro* from **Circle Software.**

Category C

Picking a winner in this category was very difficult as three stood head and shoulders above the rest. After a great deal of deliberation, the first prize went to Sedgefield Community College for 'Into Europe with Style' by Paul Nicks. Paul receives for his school *Impression Publisher or ArtWorks* from **Computer Concepts**, a one year unlimited direct-dial free access to the **Silicon Village**, a modem from **John Clarke Computing Ltd**, any CD-ROM from **Academy Television**, *Spex* including *Moonbase*, *Street*, *Classroom* and *Home Environment* from **Aspex Software** and a Teletext card and software from **XOB.**

The runner up was Ringmer Community College for 'Making the News' by Andrew Shorten. Ringmer receive *Studio24* from **Pineapple Software**, any piece of software from **4Mation**, Software Templates for Avery Laser or Inkjet Labels from **Papersoft**, *ImpactPro* from **Circle Software** and *Gothic & Medieval Fonts Pack Two* from **The Datafile.**

Biggar High School were highly commended (in spite of sending in a disc which contained a virus). They receive *EasiWriter from* **Icon Technology**, *MMViewer/CD*, *PD* CD-ROMs and CD-Circle subscription from **Desktop Laminations**, and *Blinds* from **Quantum.** AU

Congratulations to all winners, and to all the teachers who deserve as much credit for setting the high standards. The prizes were kindly donated by the above mentioned software houses, and once again, we extend our thanks to them for their support and generosity.

On the cover disc are the winning entries from each category. If there's space, we'll put the runners up in next month.



FEATURE

Desktop Publishing

Into Europe with Style

PAUL NICKS looks at school newspaper production.

In the beginning

Sedgefield Community College is an eleven to eighteen comprehensive school in County Durham. Towards the end of 1994 a group of Year 10 Business Studies students decided to take part in a Young Enterprise scheme. This involves learning about the world of business by setting up and running a company.

They decided upon a newspaper which would serve not only the college but also the surrounding area. This is where we came in.

How we did it

The initial plan was for the college to produce and print in house, we were however overtaken by events as a deal was agreed with a local print company Ceddes Print, who agreed to print our first run free. They required from us print ready copy. We were able to produce this using either the college laser printer or our trusty Cannon BJ 230.

Next software. As a college we have in use Pendown, Easiwriter and a single copy of Impression Publisher which is used to prepare our handbook and prospectus. Acorn D.T.P is also available. This is looking a little dated now and it was decided to use Impression Style. As money was tight we decided to try and obtain the cost of the software through sponsorship. One of the firms we contacted was Cumbria Software Systems who were engaged in some work on our premises at the time. They very kindly agreed to supply us with a copy of the programme in exchange for a banner on our paper displaying the fact that Style was the programme used and their telephone number. A competition was run to think of a name and to design the logo to be used on the masthead. The winning entry was judged to be Newszone and the logo was drawn in several forms, using Draw and the final choice created using Vector.

The reporters were now faced with the task of finding and writing their stories, here Pendown Plus was used and after a final run through the spell checker each story was saved as a plain textfile. The editorial team then got together and saved the stories in directories entitled "Front", "PageOne" etc. The completed disk was then passed to the D.T.P Team.

This is a rather grand title for a small group who were interested in the production side of the company. None of us are what could be described as computer experts and in fact had never tackled anything like this before, on top of which we had little or no experience of the software we were to use. The success of our venture pays great testimony to the software. After much huffing and puffing we watched our first edition appear from the jaws of our trusty BJ230 and after final proof reading off it went to the printers. Twenty four hours later a group of very excited children clutched the first issue in their hands.

When you open a box of 1500 copies of your work there is a king of a thrill to have achieved something that people will enjoy. The D.T.P team sat back in the reflected glory and anticipated a slow build up to the next issue. Much discussion taking place as to where improvements could be made. The most obvious being to use photographs rather than clip art.

Into the future

The peace was shattered by the management team returning from a Young Enterprise meeting with the news that we had been chosen to represent the North of England at a trade fair in the Netherlands, the next printing had to be out by Valentines Day - this was Friday the 10th! Also the issue after that had to be output as a postscript file so it could be printed by the Northern Echo presses. Talk about a steep learning curve. The blue funk subsided and the issue was prepared in a very short time.

Being chosen to represent the newspaper and Young Enterprise in a European Trade Fair should be quite an experience as there will be people from other countries who are taking part. Speaking to them and working with them in different ways should be quite a challenge as well as a great story.

What have we learned so far ? Well a lot about textfiles, how to do interesting things in Draw and how simple football results are to type up with Tablemate but most importantly the value of team work.

"The biggest thrill for me is when I see copies of our newspaper being sold.

I wish I had an "A4" to take to Holland !

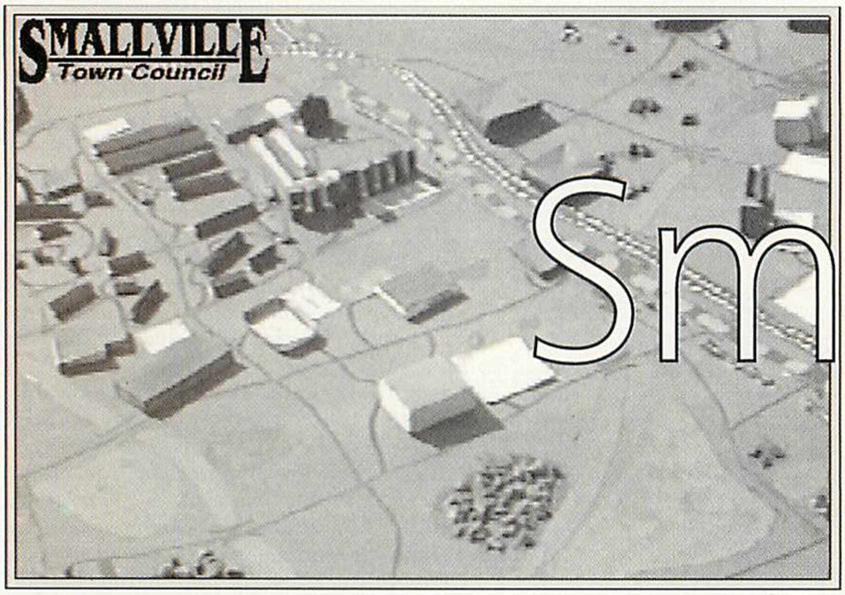
Paul Nicks

1 | Acorn User May 1995

Au

Category C, won by Sedgefield Community College.

Smallville



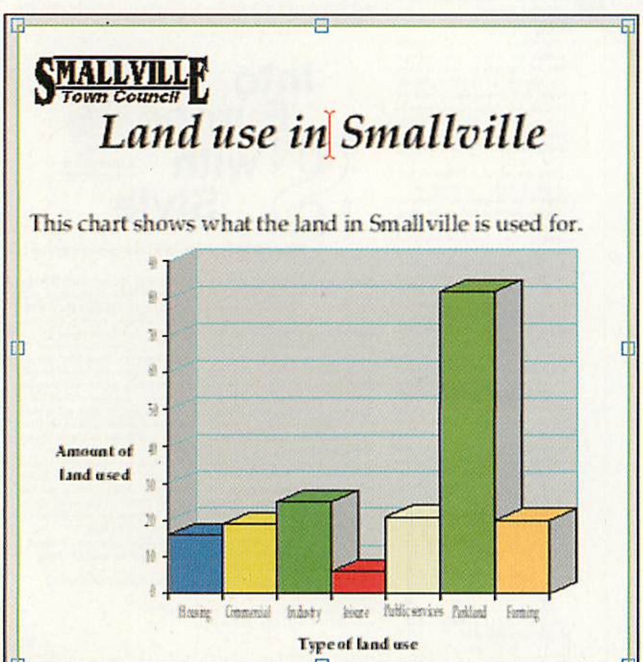
Smallville from the air – well, it convinced someone.

With the increasingly wide selection of software available and the current pressure on time in the classroom, it is often tempting to play safe and stick with word processing when considering IT. However, with a little experimentation and a few items of software, it's possible to make it a bit more varied than that.

Town Planning isn't something that would necessarily inspire everyone with great ideas and enthusiasm – unless you're called Nigel and have an anorak surgically attached to your back. But when my primary school embarked on a whole-school environmental project, with the staging of an exhibition as a goal to aim at, this was the area my Year Six class had to negotiate.

Our hardware resources consisted of an A4000 workstation fitted with a Deskjet 500C printer, a Vision digitiser, a video camera, and three Acorn Pocket Book computers, together with an A-link to transfer information from the Pocket Books to the A4000.

Before getting fully underway, I will point out my use of the royal we throughout this article. When used, this refers to my class and me, although in truth it was usually my class, with me standing there saying: 'Do you really think this is going to work?' It usually did.



Would you farm in Smallville?

The plan

I wanted an approach which would motivate the children, act as a vehicle for the basic curriculum and which could provide opportunities for a variety of IT activities. If I could also have included flying pigs, that would have been fine too. The idea I finally came up with was that the class would actually plan their own fictitious town and then, acting as the town council, residents, etc. present it as if it were real. I estimated it would take five weeks to do this and include all the other curriculum areas required. Unfortunately, just before embarking on the project, I received an invitation of the type you can't refuse from my local hospital requesting I join the surgeon for a knife throwing party. When I finally returned to school three weeks later there were only two weeks left until the exhibition. Ho hum.

After two days back at school everyone in the class had a rough map of their planned town, and groups had been assigned to a variety of different tasks.

A corporate style

Since everything was in the guise of a Town Council presentation, I decided we would need to have a 'corporate image'. I set forth to produce a few *Impression Style* templates to suit our needs. Up until the release of *Style* I had always favoured *Ovation* for this age of children, finding it more intuitive and more biased towards local styles. However, with the release of *Style*, together with its button bar, things have changed. It is now a boon to the upper end of key stage two – and all Primary teachers.

Rather than use the normal master pages to set the templates up, I created them on a standard page. The main reason for this was that I wanted to include a frame which the children could resize to fit the length of writing when completed – using a master page would have made it difficult for the children to adjust this themselves. The basic template consisted of a bordered frame with a Smallville Town Council logo in the corner. This was created very quickly using *Draw*. Before saving the *Style* file I also created a few type styles and assigned function key presses to them. This ensured that body text and titles were the same.

After saving the page as *Master*, the final step was to use the Filer to set the access details to 'Protected'. This ensured that no one could accidentally overwrite the original version of the file with a new one. All the children needed to do now was to load the master file, add their text/graphics and re-save under a new name. Twenty minutes spent creating this master page at the beginning saved a lot of hassle later.

Pocket Books

The text the children produced was nearly all entered using Pocket Books. These proved excellent for freeing up the A4000 for tasks other than the

united...


The Smallville News

30p The Star of Smallville 16th May 1994

BUSINESS WOMAN WANTS A DISCO!

LOCAL SCANDAL

LEISURE CENTRE OPENED

FIRST MATCH

There may be trouble ahead...

...or how Geoff Love raced against time to build a town with an A4000 and three Pocket Books.

very time-consuming one of typing. With the text in the Pocket Book, it was connected to the A-link and the file dropped directly into the *Style* frame. It really was very quick and easy. Once complete it took the children just a few minutes to set the correct text styles, perform any editing necessary and print their work.

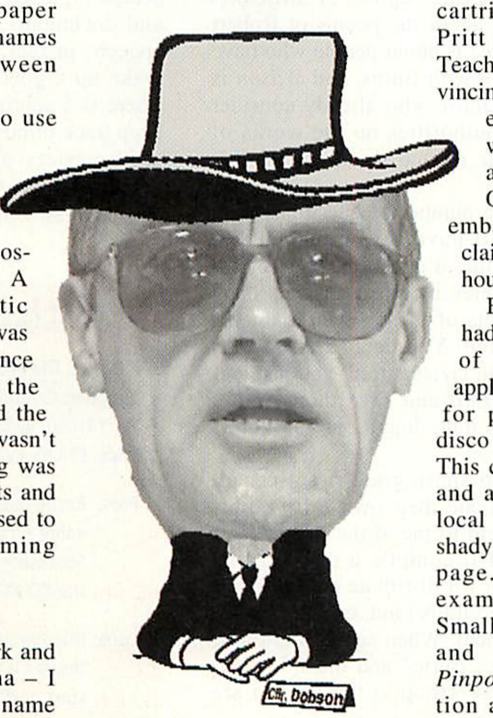
Meanwhile, a group with the task of creating a multimedia demo had finished their planning. They were going to use *Optima* to present their work with. This is a fairly simple package, although a few quirks means it does take a little getting to know. The group produced a basic plan of the screen structure on paper which included screen names and showed links between screens.

The group intended to use digitised images to illustrate their text on screen. The images were collected by taking a camcorder around the school and posing for different shots. A certain level of artistic licence and dressing up was also required, although since I was the one granting the artistic licence I avoided the dressing up – besides, it wasn't my colour. Good lighting was essential to get clear shots and a small desk lamp was used to illuminate indoor filming sessions.

A bird's eye view

Several days into the work and quite by chance Johanna – I had better credit her by name in case she sues – made a welcome discovery. While waltzing around the room with the camcorder she spied the group making a 3D model of Smallville. This was being created on a board about 1m by 1.5m. It included hills, rivers and, of course, all the buildings. What she discovered was that by standing over the model and zooming in with the camera, she had been the first person to photograph Smallville from the air.

We grabbed some shots from different angles and set about digitising them. The end results were amazingly realistic. We took one and dropped it into a landscape version of the master page I had created.



The first Mayor of Smallville.

We then used *Quicktile* to print a large version of it. The large version was, er, large – actually, the single *Style* page was tiled onto 42 sheets of A4 which, after eventually being printed (thankfully the Deskjet is mature enough to feed itself) were patiently cut and pasted together. I have to say that the end result was quite impressive and probably worth the ten ink cartridges and six sticks of Pritt – only joking, Head Teacher. In fact, it was so convincing that many people at the exhibition asked where we had managed to get to aerial photograph from. One person, who I won't embarrass by naming, even claimed they could see their house!

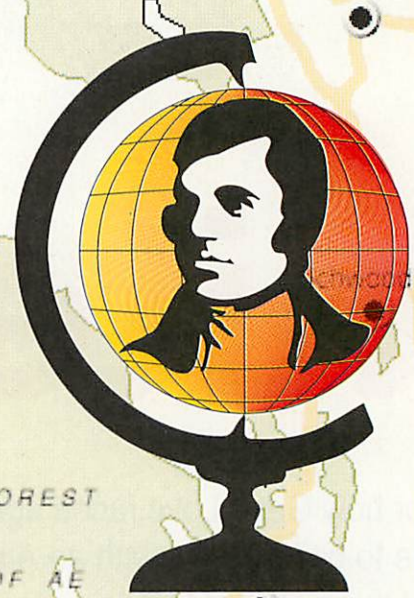
By this point the project had blossomed in a number of directions. Carla had applied to the Town council for permission to build a disco on top of the playpark. This caused a flurry of letters and a special edition of the local paper which included a shady photo of her on the front page. A local farmer was examining the impact of Smallville on local land use and started using *Junior Pinpoint* to survey the situation and produce graphs of results. The now popular aerial photographs were featuring on everything, from maps to souvenir goods, all of which added to the growing economy of Smallville.

It was at this time that the residents of Smallville elected a Mayor. For a mayor he was rather reluctant to be photographed, but a posse of Smallville's paparazzi finally caught him with a long lens somewhere between the dining hall and the staff room. He was quickly dropped into *Revelation*, given a quick makeover and an outfit suited to his new duties. He's never been the same since.

Forward planning

The combination of the Acorn Desktop, together with the Pocket Books, provided a really flexible combination. The time factor, so often quoted as being the reason why a variety of IT experiences can't be offered, was largely removed by the use of the Pocket Books to preprocess text. This meant that the children experience IT being used in different situations, raising both their awareness and confidence. Using the hardware and software in this article, a primary teacher could tackle all sorts of projects. AU

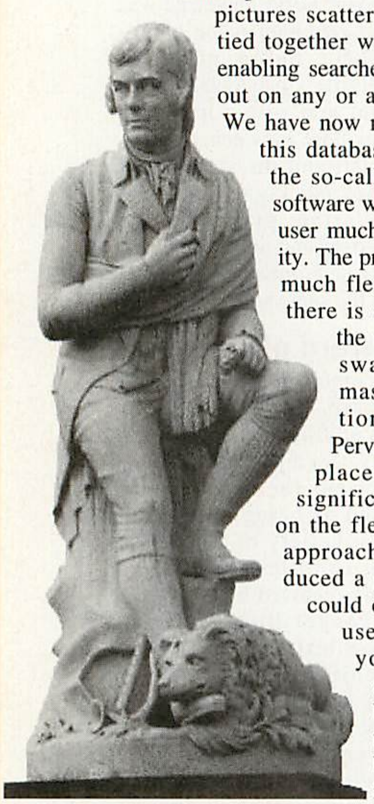
The World of Robert Burns



Geoff Preston looks at the latest CD-ROM from CSH

A couple of months back, all the *Acorn User* editors wrote a small piece attempting to predict what the future had in store for Information Technology in general, and Acorn in particular. This was an almost impossible task because the technology is moving at an ever increasing pace. None more so, I suggest, than CD-ROM.

One of the first CD-ROMs I used was the *Complete Works of Shakespeare*. By today's standards, this is a fairly tame offering which does more to demonstrate the enormous capacity of CD-ROMs; the disc includes all the major works of Shakespeare, with some appropriate pictures scattered around and tied together with a database, enabling searches to be carried out on any or all of his plays. We have now moved on from this database approach to the so-called interactive software which allows the user much more flexibility. The problem with too much flexibility is that there is a tendency for the user to become swamped in the mass of information available. Perversely, CSH has placed a small but significant restriction on the flexible learning approach and has produced a product which could conceivably be used by the very youngest up to adult, and beyond. It is this feature, I believe, which is more significant than the disc itself.



Digitised photos are liberally scattered throughout the work.

Trails

When you click on the CD icon, the disc window opens showing the *Burns* icon, and double-clicking on it installs the program on the icon bar. The only part of the program accessible at this stage is the timeline, which is accessed from the application menu. To get into the main part of the program you need a 'trail'. A trail is a text file which determines the user's 'route' through the software. These may be written by the teacher and will allow the user to go only to the places relevant to that particular lesson. Because the teacher can determine what the user will see, trails can be written for specific age groups or abilities.

Several trails are included on the disc and these clearly show how the software can be tailored to suit any age group. The trails have varying degrees of difficulty. *Poem1* is all about the poems of Robert Burns, *People2* is about people who have no association with Burns, and *Wilson* is intended for those who already consider themselves authorities on the works of the Bard. The novice should avoid this trail.

Trails are a number of questions, each of which will have seven elements: a location, a clue, a question, one correct answer and three incorrect answers. Any number of sets of these seven elements can form a trail. You don't need to be a programmer to create a trail, you just create them in *Edit* and save them onto a disc. To use a trail, drag it onto the *Burns* application icon.

In order to share good practice, all those who create their own *Burns* trails may send them to me at the *Acorn User* office, and I'll compile a disc of all I receive which I'll distribute only to those who submitted trails (and, of course, CSH for its reference). When submitting trails, mark the disc 'Burns' and make it obvious which age group(s) the trail(s) are intended for.

The software

Unlike the Shakespeare disc previously mentioned, *The World of Robert Burns* is much, much more than a collection of his writings, although it does include just about everything he wrote. This is a complete reference on the life and times of the Bard including his personal life, his acquaintances, and the places he visited, although trails need not focus on Burns. Indeed, it is possible to create trails that don't even refer to Burns.

How well the software works is largely dependant on the quality of the trail. What can be said is that well-written trails will provide a variety of locations, showing hand-drawn maps, extremely well presented digitised photographs of locations and documents, video clips, sounds and speech; in fact, everything that goes to make up a good multimedia production. There is a scoring system which lets you keep track of how you are doing and there are a variety of resources on the disc which students can use for project work. Oh yes, and an audio tape. AU

Product details

Product: The World of Robert Burns
Supplier: Cambridgeshire Software House
Tel: (01480) 496442
Price: £79.95 +VAT

Pros: Easily tailored for all ages • Excellent value • You don't have to be Scottish • 'Trails' make customising the CD-ROM easy.

Cons: Documentation is a little sketchy at times • If you don't know how to start it, it's not obvious.

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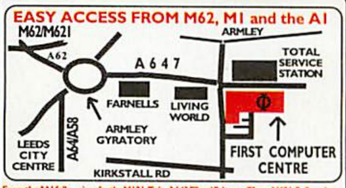
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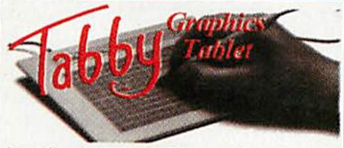
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GAME SHOW

Welcome to another Game Show – it looks like the recent games drought is beginning to ease, and I've been able to dig up some information about several forthcoming titles.

Oregan is planning to release a couple of games towards the end of the year based on updated versions of *Magnetoids* and *Arcturus* – aimed at the Risc PC, they have vastly improved graphics. Eclipse is almost ready to release the environmental strategy game *Global Effect*, and they tell me they will be converting *Rome AD* and *Daughter of Serpents* in the near future.

Meanwhile, Krisalis is working on a conversion of the atmospheric graphics adventure *Alone In the Dark* to be released in October. I mentioned last month that an Acorn hit was being converted for the 3DO, and anyone who hasn't heard the news already might be interested to know that the game in question is *Star Fighter 3000* and it's Krisalis who is responsible. I'm immensely pleased that the quality of the game has been recognised, and I'd like to wish all those involved the best of luck.

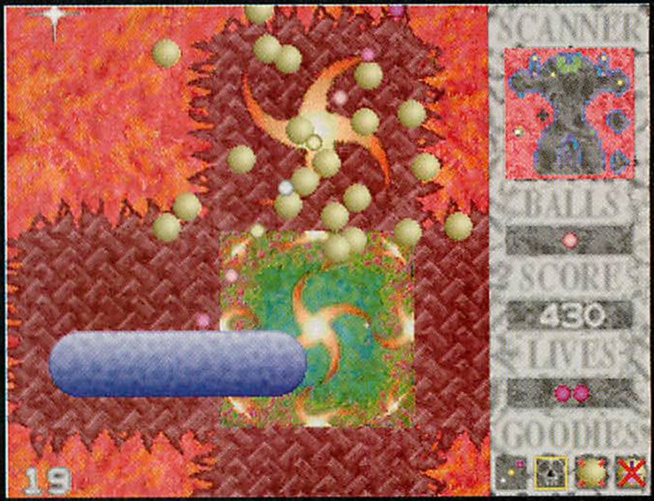
Programmer's profile

Digital Psychosis released its latest game, *Oddball*, a month or so ago. It's an interpretation of the familiar bat-and-ball games of the past, but the scale's been altered somewhat. Now the levels cover huge areas and you must chase the ball as it rolls over the dangerous landscape. Their original game, *Asylum*, followed the young hero Sigmund as he battled through his own brain, trying to shut down rogue cells in an attempt to restore his sanity.

If you've taken a look at the *Acorn User* CD-ROM, you'll have found the latest version of *Gamesuite* – a set of public domain modules that allow programmers to produce professional games quickly and easily. *Oddball* itself makes extensive use of these utilities, and its speed and complexity demonstrates the power of the modules. The man behind all of these projects is Andy Southgate, and I've taken the opportunity to ask him a few questions:

How did you get involved in writing games?

I first started writing games back in the 1980s. I got a ZX81 soon after they arrived, and learned to program it. I wrote a few games, but nothing happened to them, so I then moved on to a Memotech MTX500 which was a bit of a mistake as very few people bought them. Still, it had a built-in assembler so I could get to work on a few games.



Andy Southgate's next game will be a shoot-'em-up, because you don't get to blow anything up in *Oddball*.

How did you become involved with the Acorn?

The MTX faded into obscurity and I spent my savings on an A3000 soon after they came out. Back then, these were impressive machines, although moving from Z80 to ARM code took quite a while. I found it difficult to write games at first, because the RISC OS sprite plotters are a bit inaccessible when you're just starting out. Because of this, I armed myself with a couple of programming books and began to write the *FastSpr* module. I eventually got it working, and the first version formed the basis of *Asylum*.

Asylum needed sound, so I wrote a simple module, *Stasis*, to load and play samples. When the game had been completed, the first *FastSpr* and *Stasis* modules were released as PD – they were primitive by *Gamesuite* standards but they did the job. The *Amnesia* module was created to provide routines I'd had to write over and over again in *Asylum*, such as object handlers and collision checking.

How do you put your games together and have you any ideas for the future?

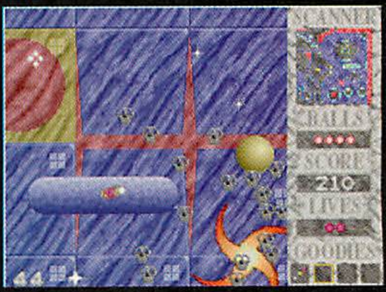
I never plan my games before I write them! *Asylum* was developed from a program to test *FastSpr*, and *Oddball* grew from my first attempt to play with *Amnesia*. My next game will be some sort of shoot-'em-up, as you don't get to blow many things up in *Oddball* and I'm suffering from withdrawal symptoms. I think the emphasis has to be on total and gratuitous destruction – I'm tempted to recycle the *Oddball* scrolling code to give the player a view from above their ship, and go for a fast, dark and sinister atmosphere.

If you'd like to know more, you can write to Digital Psychosis at 14 Madingley Road, Cambridge CB3 0EE – if you fancy taking a look at a demonstration version of *Oddball*, please enclose a blank disc and a self-addressed envelope (there was also one on the *Acorn User* CD-ROM).

Steve Mumford



Asylum from Digital Psychosis – the basis for *Gamesuite*.



Oddball – bat and ball, with the scale changed somewhat.

Burn 'Out

Supplier: Oregan Software
Tel: 0121-353 6044
Price: £24.95 inc. VAT

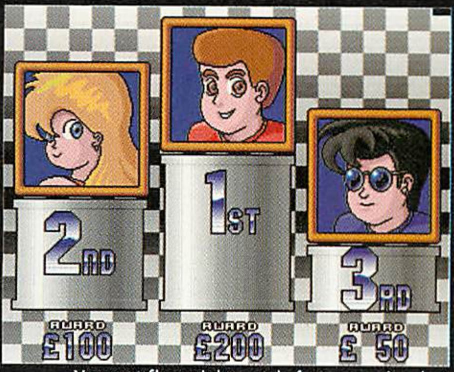
Imagine, if you will, an island dedicated to the sport of buggy racing, whose environs range from lush forest to sprawling city. This is where the *Burn Out* races are held, and by skilful driving and some nifty wheelwork you must guide your chosen buggy to victory on a variety of treacherous tracks. Not content with staying on solid ground, they leap into the air at the earliest opportunity, and you're left clinging on for your life as the road buckles and bends under you.

Starting off in a forest, you must wend your way through beaches, cities and moorland before you head up into the mountains for the last few stages of the race. As you progress, the weather deteriorates and you're left scraping snow from your windscreen as you try to avoid the other competitors.

Burn Out is supplied on four discs, and can be installed on a hard disc should you have one. While the game is loading, your machine's configuration is automatically checked. There are plenty of options to tailor its performance – for instance, if you find it's running too slowly you can turn off the textured track or lower the detail. Personally, I prefer to leave most of the options on because a lot of the character of the game relies on the stylised graphics, and the feeling of motion starts to fade when the road is replaced by a series of plain rectangles.

Although the race starts off at ground level, you're quickly propelled into the air on some immense bridges that have similarities to certain fairground rides. If you hit them at high speed your cart is thrown into space – get your timing right and you can use the jumps to leap effortlessly over the cars in front. I'd certainly advise this wherever possible because your fellow racers have a disturbing habit of waiting until you're just about to overtake before swerving madly into your path.

To progress through the tracks you have to complete each lap before your allocated time runs out, and you must finish the race in the top three. If you're successful you can collect your prize money and take a trip to the garage. Upgrades are simple; you can increase your manoeuvrability by buying new tyres, improve your acceleration by tinkering with the gearbox, or knock up your top speed by splashing out on a new engine. It's even possible to give your buggy a respray, but it's only for those with money to burn. There are no passwords to remember in this game – instead, a credit system is used similar to that of an arcade machine. If you don't complete a stage, you've got a couple of extra chances before you have to start from scratch once more.



You get financial awards for your wins, but unfortunately there isn't an option to print it.

It has to be said that you get a lot more out of the game if you're running *Burn Out* on a fast machine – the techniques used to render the track are a little blocky and the speed of the frame update is critical in keeping the feeling of movement alive. It's not been coded to be a simulation, so don't expect the laws of physics to make any pronounced appearances – the pools of light cast by your headlamps float miraculously into the air when you jump off a ramp.

The graphics in *Burn Out* are particularly impressive and it's obvious that a lot of time has been spent getting them just right. There's plenty of music scattered throughout the game, and that's one of its strong points. Snippets of music, jingles and full-blown tunes greet you at every screen, and combined with the colourful menus and out-of-race graphics, the game wouldn't look out of place in an arcade.

The authors have aimed to make the presentation of the game as professional as possible, and ultimately I think they've succeeded. There are a few glitches that suggest things got a little rushed before release, but the striking cartoon-style graphics and the catchy music combine to produce a game that looks good and is fun to play. Congratulations to the Dream Team for their first release, and here's to many more.

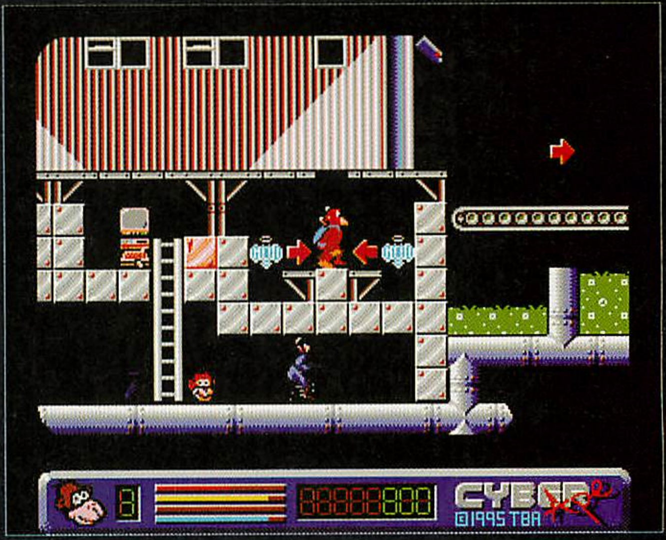
Steve Mumford



The graphics are blocky, but are so well animated it doesn't matter.



Cyber Ape



One Ape and his banana against the world.

TBA Software
Tel: (01761) 470003

TBA software has a habit of producing well presented, slick meaningful games. With this pedigree you might expect a high-tech sort of baffling game based on the rules of *Three Dimensional Chess*, should such a game exist. Well, I am chuffed to report that what we are offered here is a good laugh, with a positively distinct and politically correct attitude, no blood and no offensive weapons. The truth is this is a high-tech game but all the difficult aspects have been tucked away in the programming, providing no less than 50 frames per second in animation and over 40 levels to enjoy it all in.

So what's it all about then? Well, it's a cross between *Universal Soldier*, *Quantum Leap* and some other science fiction notion. The game is based upon an ape, but no ordinary ape. Indeed this little chappie has been whisked from his comfortable jungle habitat and taken, much against his will, to a laboratory where he is turned into a cyber-ape with much improved parts. However, life is not all sweetness and light as our little hero gets a tad miffed at not being able to see his family and friends.

In true gun-ho style, all the Steve Austin technology is put to good use in the trek for home. There are some 40 levels split into four distinct areas – Industrial, Urban, Desert and Jungle. This, I must say, is a very Japanese way of doing things but if the format works and people want it, why change?

Each level you tackle is set against the clock and while you battle the seconds away, the Forces of Evil are constantly at your heels. To beat the clock and indeed the level, the Ape must discover where all the keys are hidden before rushing to the nearest exit.

I must confess that things do become a bit silly from here on and I might add that this is for all the wrong reasons because I am, and I'm sure you are, used to mindless and mindful violence in games these days so the following might seem tame.

You see Apes don't carry guns because, (according to TBA) they are 'Very Bad Things.' So what does that leave a super intelligent ape? Well, his one and only supply of food I suppose. Bananas. These can stun bad people and if powered up correctly can even knock them over. I am impressed – I think. Also included in the rules is the fact that should you jump on someone from a great height and kill them, then the Forces of Evil will find you faster via the trail of mishaps. TBA certainly did not take a leaf out of the A-Team rule books – rolling a jeep over a cliff, smashing it to pieces on the rocks below then watching all the people in it get out and scratch their heads should at least translate somewhere onto the games market.

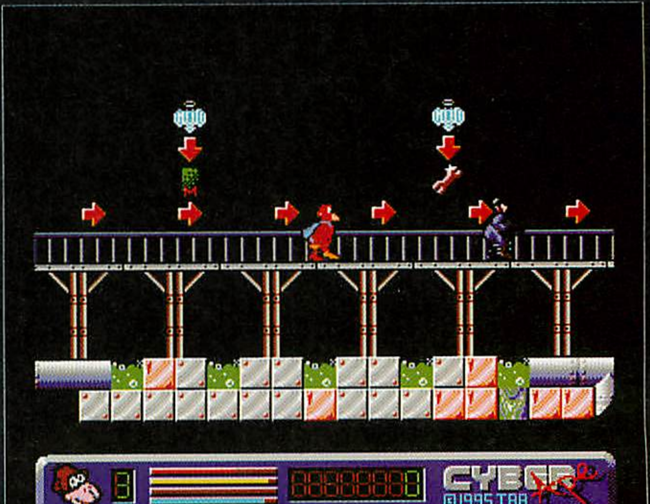
Basic controls give you Left, Right, Up, Down, a quick map reference key and of course Fire Bananas. Another nice little feature lies in the Q button which gives a quick suicide exit from the game.

There are many things to do along the way, including powering up your Ape, which gives improved walking, faster climbing and even a cloaking device. Collect keys, security cards, rabbits, extra bananas and anything valuable for improved points. Of course, there are certain things to avoid collecting such as acid, toxic waste and other such nasties.

Included in the instructions are a few brief hints and tips, one being the technique involved in climbing, which to some Sonic and Mario users will be second nature, to others completely bizarre.

So grab your bananas gamesters! Let's hit the platforms!

Steve Atherton



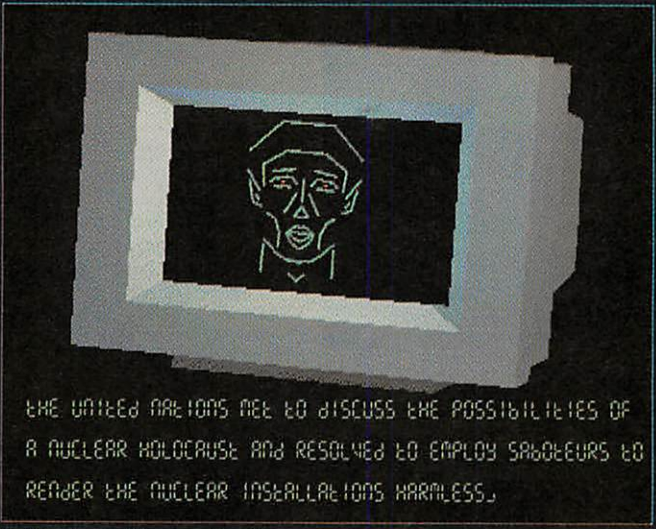
Avoid bubbling acid and the Forces of Evil – the Great Grape Ape never had this problem.

Detritus

Supplier: Myndgaemz
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Blimey! Seven disks and a book to read at bedtime. This certainly is a package and a half. It is a game of some depth too – I highly recommend that you read the novel that comes with the game as it not only gives you a feel for the concept, but also provides some rather timely insights into the odd problem that might occur. Don't be put off by the book and its rather large words or colourful letters – its purpose is for game protection which asks you to provide three entries from the book to access the game proper. I think maybe just one entry would do – after all, the chances of getting the word wrong must be stacked firmly against the potential pirate.

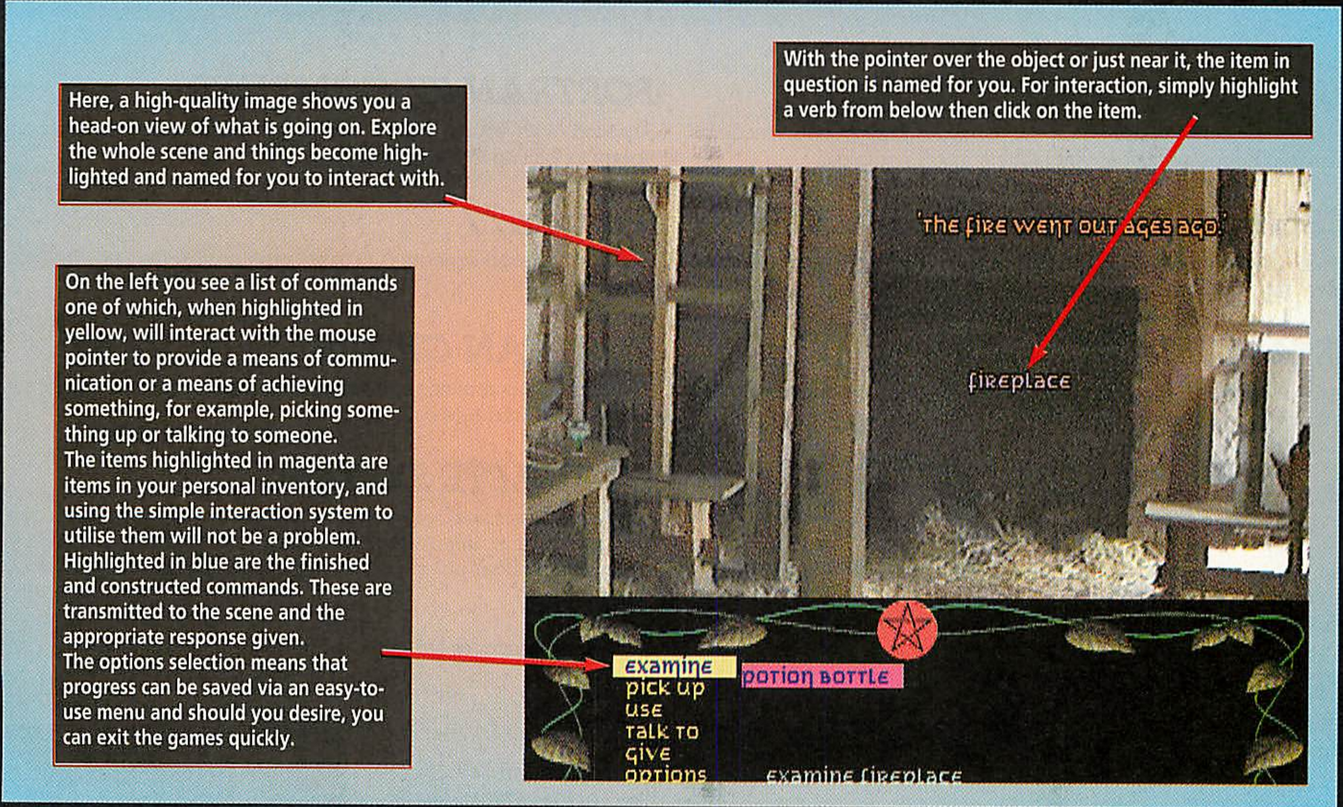
The game starts with a brief introduction to a nuclear holocaust, with the usual trimmings of only a few people remaining to carry on the human race, set up a base, protect and survive and so on. However, with all this doom and gloom you would expect planet Earth to be scarred by the intense nuclear bombardment but no, the opening frame is a woody glade with a cheerful barn bearing fresh straw. To explore the environment the screen has been split into two areas, with the top half showing the scene – a very clear scanned image of the place or person you are visiting. The bottom half is reserved for commands and inventory listings. The mouse pointer allows you to explore the scene, with objects being explained or itemised for reference.



Quiet – he's telling you the plot ...

I am just about getting to grips with all this so I hope to return to it in a few months and tell you how I managed. So far, the game appears very well written and presented and will certainly keep the adventure gamer busy for many months to come. I am also happy to say that free help is available for this game via the programmer or Byte Back Computing.

Steve Atherton



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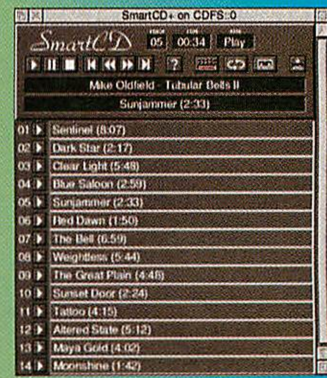
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INTELLIGENT INTERFACES

Run the RISC

Mike Cook builds one of those games you get at fairgrounds which involves two pieces of bent wire and a very steady hand.

For the last two months in Run the RISC, we have been looking at the printer port. First of all we looked at what it was and then how to tap into it; now we are going to incorporate what we have learned into our own program. As a vehicle to do this I will use that old standby, the steady hands game. This is the one where a small loop has to pass along a bent wire without touching the sides. This is a good project to start with, as the hardware side is quite straightforward and easy to understand, leaving us free to concentrate on the software needed to monitor the wire.

The hardware

The idea is to have a bent piece of stiff wire with a wand loop bent round it – the basic set up is shown in figure one. I find it best to use a wire coat hanger if you have any left after making all those things off *Blue Peter* (however, don't make the mistake my brother did when he made one using a wire coat hanger which had been nicely varnished). I find it best to set the wire into a block of wood for stability and at each end bend a wire rest. The main wire should be covered in insulation tape at the rest wires.

The bent wire and each of the end rests need to be connected to the printer port using the connector we made last month. We also need to put a pull-up resistor from each of these inputs to five volts. The actual value of the resistor is not very important, anything from 1K to 47K will do, but I tend to use 3K3 resistors. Incidentally, 3K3 is the same as saying 3.3K, its just that a decimal point can easily be lost on diagrams so we use the nKn convention in electronics. As I said last month, we do not actually need a five volt supply – we can use the strobe output or control bit zero. Finally we have to connect the wand to zero volts or earth as it is sometimes called.

What we have made is a system that will normally feed a logic one into the computer's inputs, because each input is connected up to five volts through a resistor. However, if any of these wires are touched by the earthed wand we place a logic zero on the input. You can see now why we need a pull-up resistor, if we connected the input straight to five volts we would have a short circuit when the wire was touched by an earth. The golden rule for interfacing without smoke is never to wire your supplies together.

Testing the system

To test this out we need to use the printer port monitor originally published on the May 1995 cover disc to run this with the wand not touching anything and you should see bit seven showing a zero. Touch the bent wire with the wand and it will show a logic one. Now some of you might be thinking: 'hang on a minute, that's the inverse of what has just been said.' The reason for this is that bit seven is an inverting input; that is the computer sees the inverse of whatever signal is being fed into it. Move the wand to the end rest and you will see bit six go down to a zero; touching the start rest, bit five will be a zero. That last test on the start rest will only work if you have a bi-directional printer port. As I said in the May article, the bi-directional printer port has more status lines than the single direction one. If these tests do not work then check your wiring, it might be that you need to clean up the wires with a bit of fine sandpaper.

Having tested out our hardware we can now proceed with the confidence that if we get a problem then it is bound to be a software one. The best strategy for developing any program, and this goes double for an interfacing project, is to build the thing up incrementally. Then when something does not work the fault is likely to be in the last change you made.

To start with we will just write a program that bleeps when you touch the wire. I will be using the system calls to access the port so if you do not have a bidirectional port you will need to load in my conversion module by either double clicking it or still having the port monitor application running as you run this program. The program is:

```
REPEAT
  SYS "Parallel_Op",0 TO ,,D%
  IF (D% AND &80) <>0 THEN VDU 7
UNTIL FALSE
```

We don't often show listings, but this contains so few lines and I want to talk about it in detail. Those of you with typing difficulties will

find a version of it on the cover disc with a few more lines to trap any use of it on a mono direction printer port machine where the user hasn't loaded in my conversion module. The entire program is simply two lines inside an infinite loop. The first line is the system call to read the status register into the variable D%. Note that the two commas before the D% are vital here because they tell the computer to put register 2 into the variable with registers 0 and 1 being ignored. Register 1 will contain the value of the data lines of the printer port and we don't need it here.

Numbers, bits and hexadecimal notation

D% will contain all the bits from the status register as shown by the port monitor program, but in this case we are only interested in one bit of that number – bit seven, or the most significant bit. This is a point that always confuses beginners; we start counting the bits at zero so if we have eight bits the eighth bit is called bit seven. This is not as silly as it sounds, because normally we want to convert the bit pattern in a byte into a number. When we do this each bit is given a value that is a power of two and that power is the same as the bit number. Therefore, bit zero stands for two to the power zero which has a value of one. Similarly, bit three contributes the value of two to the power of three which is eight.

When you ask most people how computers work they will say that they work with numbers, but this is not true. What they do is work with binary bit patterns; a number is just one of the ways you can interpret a binary bit pattern – there are lots of other things it can stand for. An example of this is ASCII, a standard set of bit patterns which represent alpha numeric characters. So ingrained is the notion of numbers that all ASCII tables show the relationship between characters and bit patterns as numbers. In fact there are many ways to interpret a bit pattern as a number. There is unsigned, two's complement, BCD, excess three, floating point, and fixed point, to name but a few. For any given bit pattern you will get a different number depending on which convention you choose to interpret it.

The point of this is that when reading in bits from an interface you must stop thinking of it as a number, as this will only confuse you. What we need to do is to tease out the bit we are interested in and get rid of all the other bits; in this way our program will still work whatever is attached to the other bits. Initially this looks complex and has beginners running away, but it is really quite easy using hexadecimal notation and logic operators.

You might think that hexadecimal notation is used by experts because it sounds complex and techie but in fact it is used for one reason and one reason only; because it is easy. The relationship between the number you have to use and the bit pattern you are really dealing with can be done in your head with just the minimum practice. A hexadecimal 'hex' number involves the byte being split up into two groups of four. Each group of four bits is then converted into a single character number. The four bits running from

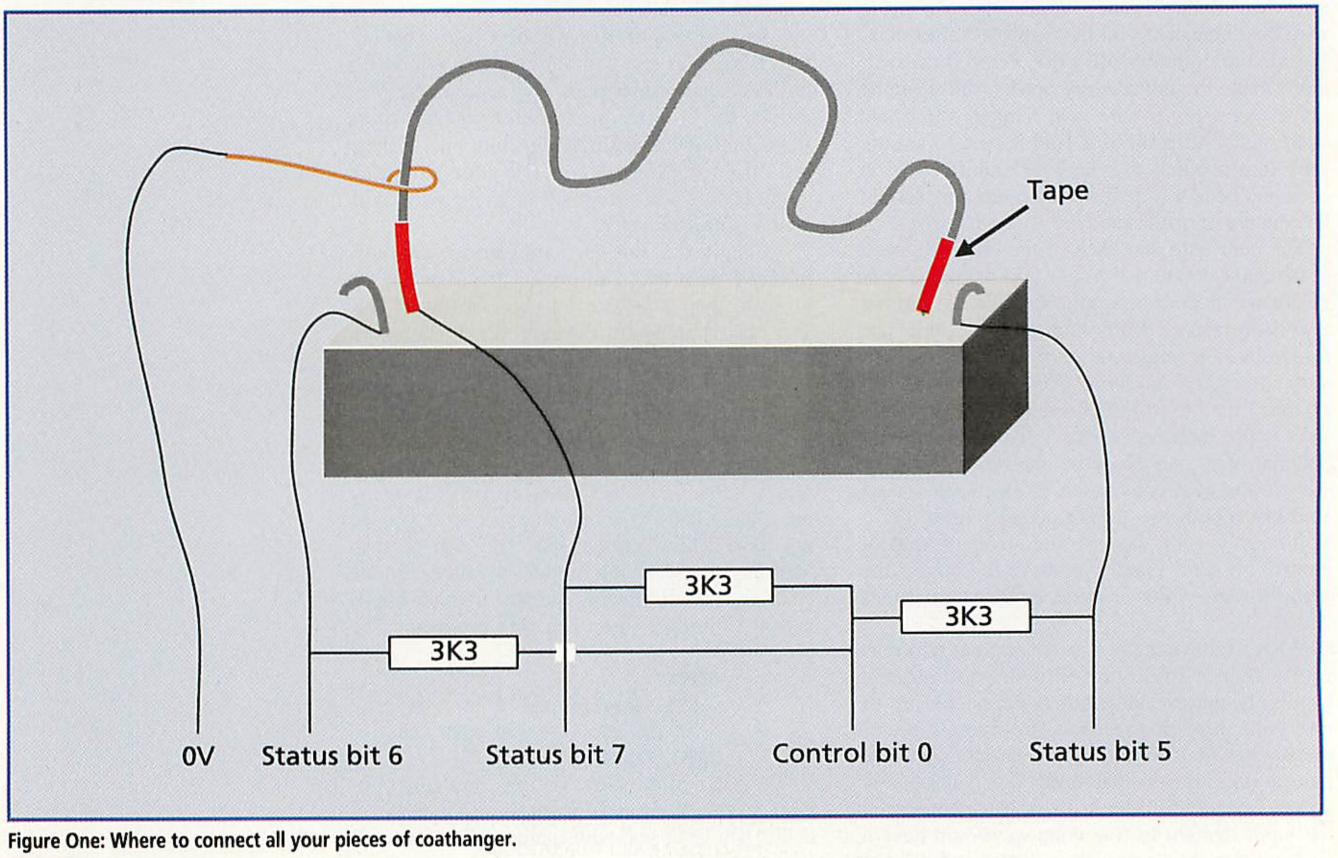
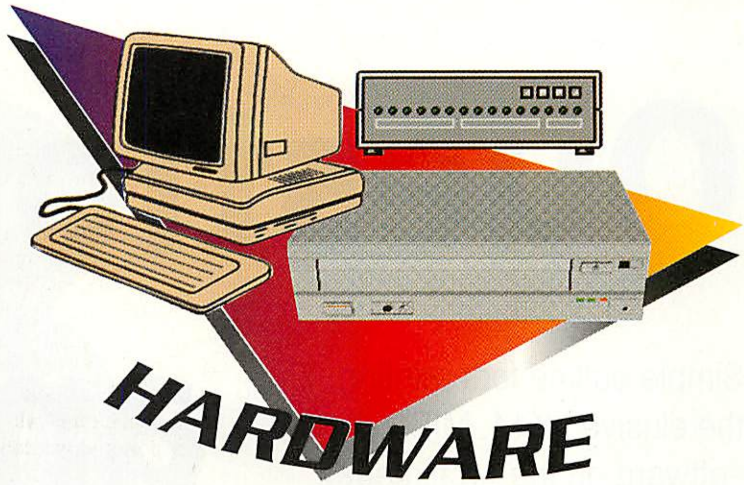


Figure One: Where to connect all your pieces of coathanger.



left to right stand for the values eight, four, two and one, so all you do is add up the bits that are one. For example 0110 will be represented as six – no eights plus one four plus one two plus no ones.

What happens if the bits add up to greater than nine, because we need to use a single character? Well we could invent extra symbols that represent the numbers 10 to 15 in a single character, but there is no need – we can simply use the letters of the alphabet. When we get ten (the bit pattern 1010) we represent this as A. B is 1011 and C 1100. This is what makes hex look weird to begin with. As we have two groups of four we will end up with a two digit number; 73, for instance. How do we know that this is 73 in hex and not 73 in the normal decimal notation? In BASIC we precede a hex number with the ampersand symbol '&', so that we and the computer know exactly what we mean.

Masking bits

As I said before, we are often only interested in one bit of the bit pattern, as we only want to see if the wire has been touched. What we must do is eliminate all the bits we are not interested in. We can't actually get rid of them, but the next best thing is to set them to zero, and test what we have left. If what we have left equates to a number zero then we know that the bit we were interested in is zero. If, however, we are left with a number other than zero we know the bit we were interested in is a one. Therefore, after eliminating all the other bits but the one we want to test we simply test to see if it is equal or not equal to zero depending on the bit state we are looking for. Note here that we never test for a residual value of one, only 'zero' or 'not zero'.

So then how do we get rid of the bits we do not want? The answer lies in the logic operator AND which performs a bitwise AND on two values. This means that the result will have a one in only the bits that both have ones in the two values we AND together. In our case, one value is what we read from the interface and the other value is a constant, or mask, designed to remove all but the bit we want to test. The rule for generating this mask is easy; put a one in the bit you want to test and zeros everywhere else. This is why it is easy to use hex, as table one demonstrates. The only confusing point here is the mask values for bits zero and one; I find my students have difficulty in coping with this until they realise exactly what is going on.

Getting back to the program the line:

```
IF (D% AND &80) <>0 THEN VDU 7
```

takes the input value D%, removes all but the most significant bit and, if it is not equal to zero, performs a VDU 7 which is a system bleep.

The start and end rests

Now we can go a stage further and use another input in the form of the end rest. The program to do this is called *Steady2* on the cover disc and is a simple extension of the first one. Instead of going round the loop forever we make it a condition that you only go round the loop looking for a touch until the end rest is reached – until bit six is a zero. This is done simply by making this a condition of the REPEAT ... UNTIL loop.

In addition, a variable is used to make note of the real time clock and when we have reached the end there is a print out of the time taken. The start of this time is indicated by you pressing the space bar. Now this is open to cheating, there is nothing stopping you from pressing the space bar when the wand is just poised above the end rest. To prevent this we have to detect that the wand is on the start rest before beginning.

This is what happens in *Steady3*; however users of a single direction printer port can't use this as there are only two inputs available. Later in Run the RISC we will see how this shortcoming can be overcome, but for now I will simply use bit five to detect the start position. This is slightly more complex as we have to detect two conditions. First of all we have to wait until the wand is placed on the end rest, in other words loop until we see a zero in bit five. Then we have to wait until the wand is removed when there will be a one on bit five.

So there you have it; your first interfacing project. Now as you might know, one of the points of my articles is to leave them open ended – that is to leave a bit of work for you to do. The programs here are simply beginning points for your own work. They could be greatly expanded, for example touching the wire could introduce a time penalty, the best times could be recorded, the players names could be asked for and used in the prompts. You could implement a high score table, one that writes its results to a file so that previous good scores are not forgotten the next day. Finally, why not replace the simple bleep with some digitised sound? So get cracking and Run the RISC. AU

Table One – hex values for masking various bits

Bit to test	Mask
0	&01
1	&02
2	&04
3	&08
4	&10
5	&20
6	&40
7	&80

Questions & answers

Simple outline font printing, the elusive LK14, MIDI software on the Archimedes and more on disc labels.

Q I am having some problems printing with fonts from RISC OS. I can get *Edit* to display the text in an outline font, but when I try to print it, the text reverts to the printer font.

Is there some setting in *Edit* to get it to use the same font for printing that it uses for displaying text, or do I need a DTP package to do this?

Simon Farrell
Thame

A ***Edit*** **will not itself print with outline fonts – it only uses them for displaying text. In order to print using outline fonts, you need to export the text to another program, such as *Ovation*, *TextEase*, *Wordz* or *Draw*.**

Since you are preparing the text in *Edit*, I assume that you don't have one of the more sophisticated DTP packages, so I'll concentrate on *Draw*.

If you drag a text file to a *Draw* window, *Draw* creates a text area, which is a block of text in an outline font. Changing the size of the block re-formats the text, rather than changing the point size of the font.

Text areas are a tricky part of the *Draw* file format, which are explained in more detail in the *User Guide* that comes with the machine. Basically, by default the text appears in 12pt Trinity Medium font. This cannot be changed in the usual way within *Draw* – you will find the font options greyed out on the menu if you try to use them.

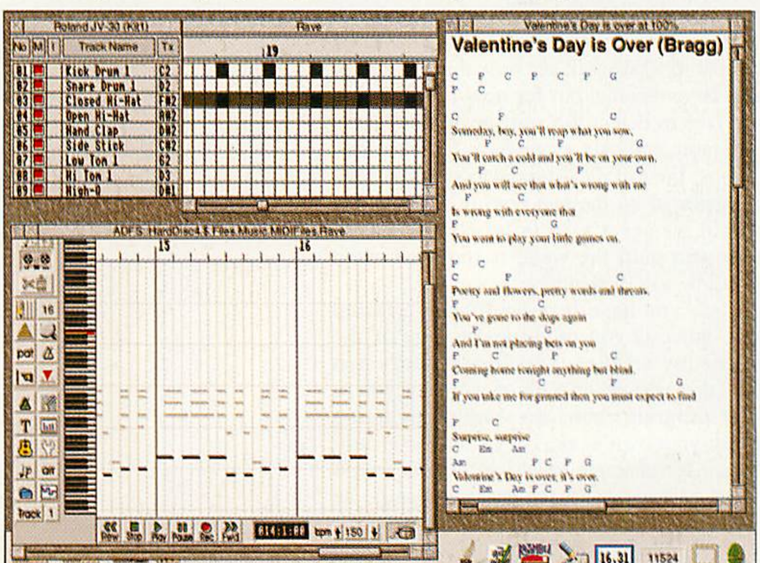
In order to change the font used, you will have to export the text back to *Edit* ('Save text area' from the 'Save' submenu in *Draw* or Ctrl-Shift-F3). This will create a file which comprises the original text file and a header. The header contains information about the formatting of the text area, including the fonts used.

The full format of textareas is too complicated to be described here – see the *User Guide* for more details – but there will be a line in the header of the form:

```
\F 0 Trinity.Medium 12
```

Editing this line in the file header will change the font used to display the text area. The altered text should be saved back to the *Draw* file; if you drag the text file icon over the original text area it will replace the text which is there already.

While this may seem to be a highly roundabout way of doing things, if you get the hang of it you can produce excellent results, as one of the winners in our Schools' competition showed. It is also the simplest (and cheapest) way to print your text file in an outline font without buying any more software than comes with the machine.



Above, *Serenade* and *Rhythm Bed* combine to provide a sophisticated sequencing setup. But it needn't stop there: you can use DTP or word processing packages to typeset lyric sheets for guitar scores, *Rhapsody 3* or *Sibelius* to create full scores, sound samplers and sound editors to create your own wacky instruments and samples... music

Q I bought my Risc PC towards the end of last year, and now wish to upgrade to the 16-bit Minnie sound card. I see from the review of the card last issue that to do this, I will need to plug it into 'some pins at the back of the PCB'. The review warns that some early Risc PCs did not have these pins, and will need to be upgraded by Granada.

As I bought my machine a while ago, I am a little concerned that my machine may not have the necessary pins. Could you tell me how I find out, please?

Incidentally, are these pins the same as the infamous LK14 pins needed for the Cumana 300ia CD-ROM drive? I can't seem to find anything labelled LK14 on my machine, either.

Andy Gerrard
Worthing

A **Firstly – yes, 'the pins' and LK14 are one and the same. The Minnie board itself plugs in to a different part of the circuit board, but connects to LK14, and at present you can't have both the 300ia CD-ROM and the Minnie card plugged in together, although an adaptor may arrive soon.**

Secondly – LK14 is located in the back right hand corner of the Risc PC circuit board, as you look at it from the front. Figure one shows the layout of this part of the PCB. There is a large, cylindrical capacitor in the corner, with LK14 being just in front and

to the right of this, between the capacitor and the main Risc PC power supply.

If LK14 is fitted, it appears as a single row of four pins, which will probably be connected by two black jumpers. If you don't have an LK14, then there will be a small row of four solder connections instead.

However, if you bought your machine towards the end of last year, you will probably be OK; the *Acorn User* machine bought in August has LK14 fitted. If you do find it missing, then get the circuit board upgraded now, before your guarantee runs out. There are no disadvantages to having the upgrade, and it is obviously a good idea to have it fitted while it is still free, even if you are not sure that you will want to use it in the future.

Q I intend to use my Archimedes A420/1 machine as the basis of a MIDI setup, but am uncertain about which sequencing package would be the best to use. I have a demonstration version of *Serenade* from Clares and was pleasantly impressed with what it had to offer, though after reading reviews of packages for the PC and Macintosh, my optimism dimmed somewhat.

Tha majority of packages for the PC, Mac and Atari seem to add even more features, especially in the number of tracks which are available, which made me wonder whether the Acorn platform falls short of a quality MIDI sequencer, or does *Serenade* really compare with the likes of *Cubase*?

After browsing through an old (1991) *Acorn Product Directory* I came across a package called *Inspiration* from Pandora Technology. This package seemed to offer some pretty hefty features, although it did have a price tag to match (£299 RRP). Is this the price I have to pay for a good MIDI sequencer? I dearly hope not.

My A420/1 machine is equipped with 4Mb RAM, its original hard disc and a single MIDI MAX expansion card. Would an ARM3 or any other hardware upgrade be particularly beneficial for sequencing, or is my present system quite sufficient for my needs?

John Burns
Lancashire

A Back in the good old days, there was a choice of two main sequencing packages, namely *Studio 24+* from EMR, and *Inspiration* from Pandora. The latter was the more powerful by quite some way, but *Studio 24+* was just one of a large range of musical products which together formed a pretty formidable music setup.

Sadly, *Inspiration* was never updated to work with RISC OS 3, and although powerful, suffered from a number of nasty bugs that never got fixed.

EMR has pulled out of the Acorn market, and *Studio 24+* is no longer supported by it. Thankfully, Le Computer has taken over the product, and is now selling *Studio24+*.

Clares joined in the fray and released *Serenade*, a very usable full-featured sequencer. When combined with the drum sequencer *Rhythm Bed* from the same company, *Serenade* is the most powerful sequencer available for the Acorn range.

***Cubase* and *Notator* on the Atari, PC et al are more powerful, but then again they are much more expensive: for the Mac, *Cubase* is £499 and *Notator* is £574, both excluding VAT. Compare that to *Serenade* at £99.95 inc VAT and *Rhythm Bed* for £49.95 inclusive. Also the features they provide over *Serenade* are quite specialised on the whole, and *Serenade* will prove to be an excellent sequencer unless you really need extreme power. And if you are into scoring your music, then the best musical scoring package in the world – *Sibelius* – is only available on the Acorn platform, and it has some very interesting MIDI features.**

Finally, an ARM3 is highly recommended for these packages: *Serenade* is a little too slow at updating its piano keyboard display on an ARM2, but is perfectly acceptable on an ARM3. In fact, I ran *Serenade* on a standard A420/1 with 4Mb RAM and an ARM3, and it proved to be an excellent composition and editing tool. My advice is to get *Serenade*, an ARM3 and, if you compose with drum tracks, *Rhythm Bed*. For scoring, consider *Rhapsody 3* and *Score Draw* (both from Clares), or *Sibelius 6* from Sibelius Software. Clares is on (01606) 48511, Le Computer is on (01245) 362225 and Sibelius is on (01223) 302765.

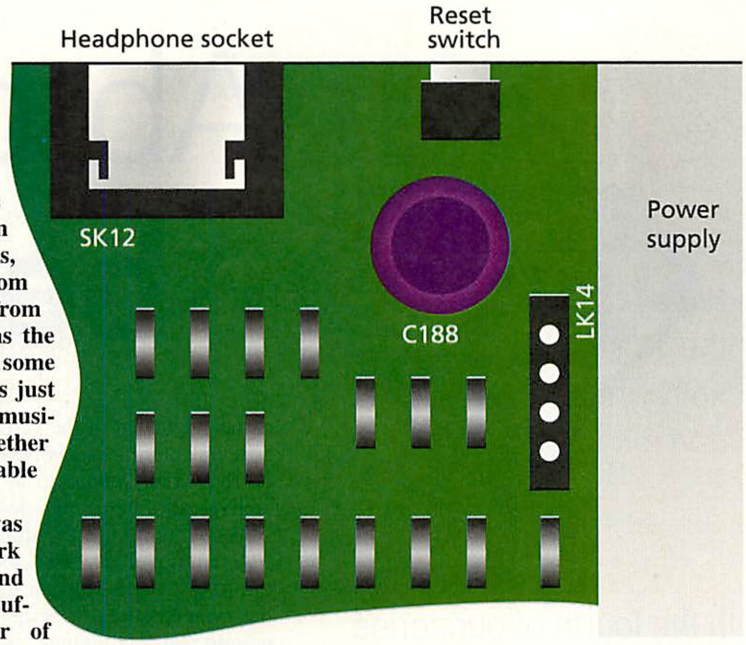


Figure one, showing the location of LK14 on the Risc PC circuit board. The figure shows a portion of the back right corner of the board, as viewed from the front; the top of the picture corresponds with the back of the computer.

Advice given

Last month's problem about finding ink-jet labels suitable for printing disc labels on to has generated two helpful replies from readers who have found suitable labels.

Mark Empson from Harpenden says:

'I too had the same problem, but found the Avery OML 099 labels (70mm by 49mm) fit the bill. Although they are only one label across with tractor feed holes on each side of the backing paper, they are fan-folded in the box six labels long – roughly A4 size. It is possible to tear off a strip of six, and I find no problem with using them on my Canon BJC-600, as the paper holder shuts down to the correct width to hold the strip.

'I have an *Ovation* document preset with boxes the correct size and position for printing out the labels. If a reader would like a copy of the template they can contact me at 1 Common Lane, Batford, Harpenden, Hertfordshire AL5 5BU.'

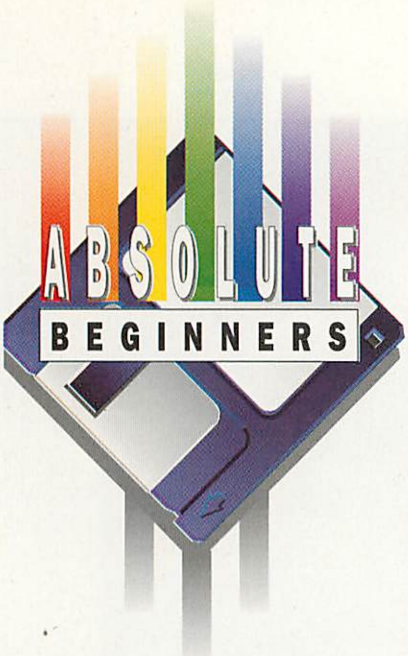
Mike Tillbrook of Bridgewater has also seen (but not used) labels which should fit the bill:

'The following labels were advertised in a Viking Direct catalogue of computer supplies: Avery ink-jet speciality labels, 3.5in diskette labels (52 x 70mm), 10 labels per sheet, 15 sheets per pack at £10.99 inc VAT (or £8.88 inc VAT per pack for orders over five packs).

'Delivery is charged on orders under £30. They also supply a range of Avery labels for use with colour ink-jets. Viking can be contacted on tel: (0800) 424445, fax: (0800) 424447.'

These labels sound as though they would be ideal for Wijand Thompson, who was looking for a disc label which did not fold over the back of the disc.

Naturally, if you have either *Ultilabel* or *LabelStar*, these programs can be set up to print both these sets of labels. AU



Absolute beginners

In the fourth of our series for readers starting out with their computers, David Matthewman looks at the Desktop.

In the past three articles, I have explained the meaning of the use of the mouse, the meaning of the elements of the WIMP, and the structure of windows. While this has had little practical application so far, it is necessary because I shall begin to use terms like 'click with Select', 'choosing a menu item' and 'the toggle size icon of a window', and I shall not keep pausing to explain what they mean. It is true that even if you have been following the series you may be unsure about these terms, but with the help of the earlier articles and with practice, they should quickly become familiar.

The Desktop

The Desktop is the name given to the standard working environment on the Archimedes; the computer usually starts in the Desktop when it is switched on. The name originated in the early days of window operating systems, where the objects on the screen tended to be thought of as equivalent to items on a desk in an office: folders, a calculator, diary and clock. Elements of this persist today, although the RISC OS Desktop on the Archimedes has been carefully re-designed to suit how people use a computer, as opposed to a desk in an office.

The Desktop is divided into two parts; the backdrop and the icon bar. From RISC OS 3 onwards (and with the help of certain utilities in RISC OS 2), the backdrop, occupying the larger, upper area of the screen, has acted as a 'pinboard' onto which important files may be placed for easy access. Other than that, it is really just a background over which windows may be opened.

Running applications

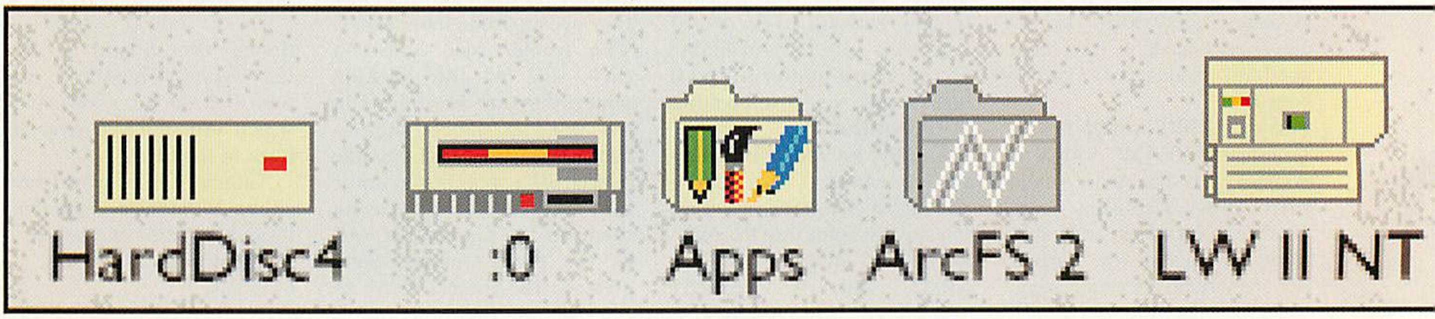
The icon bar is much more interesting. Figure one shows a typical icon bar, with the application (program) icons arranged on the right and the filing system icons arranged on the left. When you run an application such as *Edit, Draw* or *Eureka,* it places an icon on the right of the icon bar as an easy way of accessing the program. Files may be dragged from a Filer window to this icon to load them into the application, and clicks on this icon with Select, Menu and Adjust will usually make the application perform certain key operations, like loading a new file or opening a menu to allow you to quit.

If there are more icons on the icon bar than will fit, the icon bar extends 'off screen'. Moving the pointer near the right of the icon bar will scroll it left to bring the icons back on screen; moving it to the left-hand end will scroll the icon bar right. This is automatic; there is no need to click or drag with the mouse.

When an application appears on the icon bar, it is present in memory, and does not need to be re-loaded from disc every time it is needed. In fact, if you do run the application a second time, you will often get a second copy on the icon bar. All applications on the icon bar cycle control of the computer between themselves, usually many times a second. This is known as multi-tasking, and enables RISC OS to appear to be doing several things at once, even though the computer is actually only running one application at any given instant. These points confuse many people new to RISC OS – many other operating systems will only allow one application to be active at once, and will only allow one copy of an application to be loaded at any one time.

The multi-tasking on the Archimedes is known as *co-operative* multi-tasking, which means that it depends upon the writers of the programs to ensure that the programs keep swapping control between themselves. Isn't this something that only programmers need to know? Not entirely, as it means that a program which needs to do some intensive processing may temporarily take over the entire machine. With something like a game, which also takes over the whole screen, this is obvious, but it is less so with a word processor or a drawing package which appears to be running in the Desktop. The result will be that the machine will appear to 'hang' for a while – you will be able to move the

Figure one – a typical icon bar on the Risc PC. The icons on the left are to do with file operations, and those on the right are programs and processes running in memory. From left to right the icons are: the hard disc, the floppy disc, the folder for the 'standard' applications, the *ArcFS* filing system, a printer driver, the *Paint* application, the *Edit* application, the alarm clock, the mode changer and the task manager.



pointer but unable to click on anything or type any text. Well-behaved applications turn the pointer into an hourglass when this happens, to indicate that they have taken over the processor for a while, and may also give a percentage indication of how far through the job they are.

Sometimes a program will hang, freezing the Desktop and preventing you from doing anything about the problem. The Risc PC provides a *Watchdog* module to allow you to recover from this. It allows you to press Alt-Break to interrupt the running of an application and force it to quit. This doesn't always work, but it is worth a try if your computer is stuck; bear in mind, though, that some applications can legitimately take over the machine for long periods of time without having crashed. Similar modules are available for earlier computers – for example on the Programmer's Utilities disc from The ARM Club.

The Task Manager

The icon on the extreme right of the icon bar (either an acorn or a representation of the Archimedes 'A' symbol) is the *Task Manager*. This controls a number of functions, but is principally concerned with memory management and control of the Desktop.

The Task Manager was much improved with the release of the operating system RISC OS 3. To find out which operating system your computer has, click with Menu over the Task Manager icon. If you see a menu with four items – New task, Task display, *Commands (f12) and Exit – then you have RISC OS 2, the earliest operating system still in common use. If the menu has eight entries, go to the top one (Info) and move the pointer across over the arrow. A window will be displayed, with the version of the operating system in the bottom icon.

Now choose the 'Task display' entry from the menu (RISC OS 3 users can click with Select on the Task Manager icon for the same effect). A window similar to figure two will open, allowing you to change the memory allocated to various tasks. Most of the settings can safely be ignored by novices, but you may like to raise the font cache setting – which may speed up font display – or give yourself a RAM disc.

RISC OS 3 users also have an item on the Task Manager menu called 'Shutdown' (which has a key short-cut of Ctrl-Shift-F12). This exits the Desktop 'tidily', causing all applications to check for unsaved data before quitting, and then allows you to switch the computer off. You do not *need* to use this before switching off, but it is good practice to do so. AU

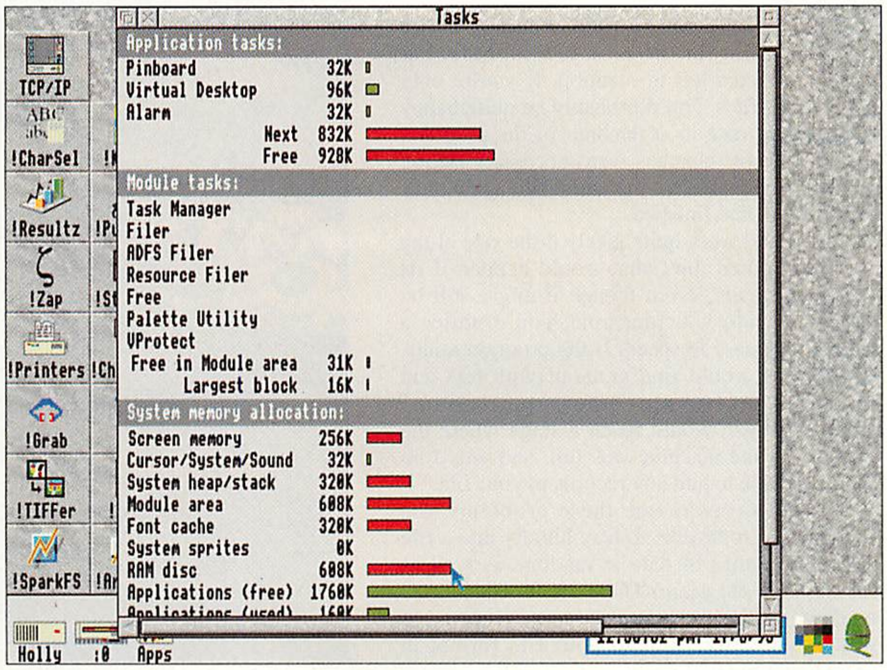


Figure two – the Task Manager window. The memory available to various tasks on your computer can be changed from this window. Any of the red slider bars can be dragged, though many have limits on their values. For instance, here the slider bar which allocates memory to the RAM filing system is being dragged from zero to create a RAM disc (an area of memory which acts like a very fast disc, but which only lasts as long as the computer is switched on). Other bars such as the total memory indicator will adjust automatically at the same time.

Jargon

Application: Another name for program.

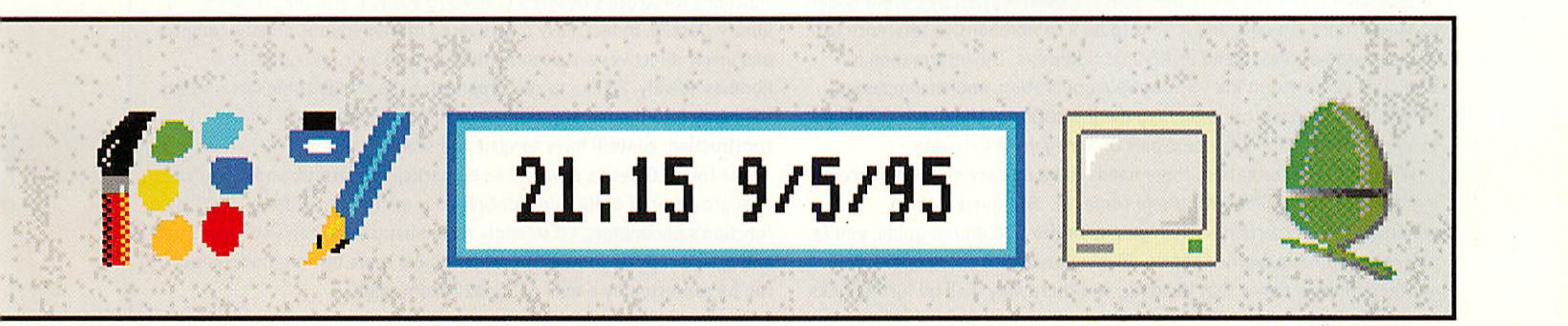
Backdrop: The area of the Desktop above the icon bar. The main function of the backdrop is to have windows opened in front of it.

Icon bar: The pale band at the bottom of the Desktop containing icons for disc drives, applications in memory, printer drivers and so on.

Multi-tasking: The process by which several programs can appear to be running on the computer at once, by swapping control between themselves. Co-operative multitasking – the system used on the Archimedes – relies on the programs to do the swapping, so if one program is doing a lot of processing, it may take over the machine for a while. Usually the hourglass is displayed while this happens.

Task Manager: This controls and displays memory usage on the Archimedes. It is accessed from the icon on the extreme right of the icon bar.

Watchdog: Module on the Risc PC which allows you to interrupt programs which have hung. Pressing Alt-Break will allow you to force the offending program to quit.





JACK KREINDLER

Steve Mumford concludes his look at file handling and tries out an interactive guide to C.

We've covered the fundamentals of file handling in the past few months, but there's one area left to mention. If you're only using small files, you'd probably be quite happy to load your data in at the start of the program, make whatever changes were necessary during its execution, and save the entire file again once the program had finished.

This would work quite nicely if the size of the file was limited, but what would happen if its volume expands? Even though it might still be able to fit into your machine, you'd notice a gradual decrease in speed. If the program multi-tasked, you would find yourself with less and less memory to run other applications. Ultimately, you would reach a stage where the memory of the machine was full, and you'd no longer be able to add any records to your file.

In order to overcome these problems, the program has to be able to leap blindly into a file and grab chunks of data at random, as well as saving them out again. There are functions in C to allow for this, but you have to be prepared to make some alterations to your file format in order to get the best results.

File structure

Imagine you wanted to save a list of names, all of different lengths – if you'd used fscanf() to do the job, there'd be no easy way of jumping to any one name within the file, since you wouldn't know how long each name was until you scanned the file. In order to find a particular record, you would have to search through from the beginning, which would be horribly time-consuming for large files. The way round this is to pad out the data and save it in specifically-sized blocks, so the absolute position of a record within a file can be determined by multiplying the size of the record by a suitable offset.

There are several extra functions provided to help you format your files; fgetc(), fputc(), fgets() and fputs(). The first two load and store single characters while the others deal with whole arrays of them. Considering the following code:

```
char letter;
int x;
letter = fgetc(pointer);
letter = 'Q';
x = fputc(letter, pointer);
```

fgetc() returns the next character in the file pointed to by the variable pointer, or returns a number equal to the macro EOF if there was a problem. fputc() should return the character it's saved to the file if all's well, but again it'll return EOF if something went awry. fgets() and fputs() work along the same lines, but they load and save strings of characters in one operation.

```
int x;
static char string[] = "Hello, World";
x = fputs(string, pointer);
```

Helping hands

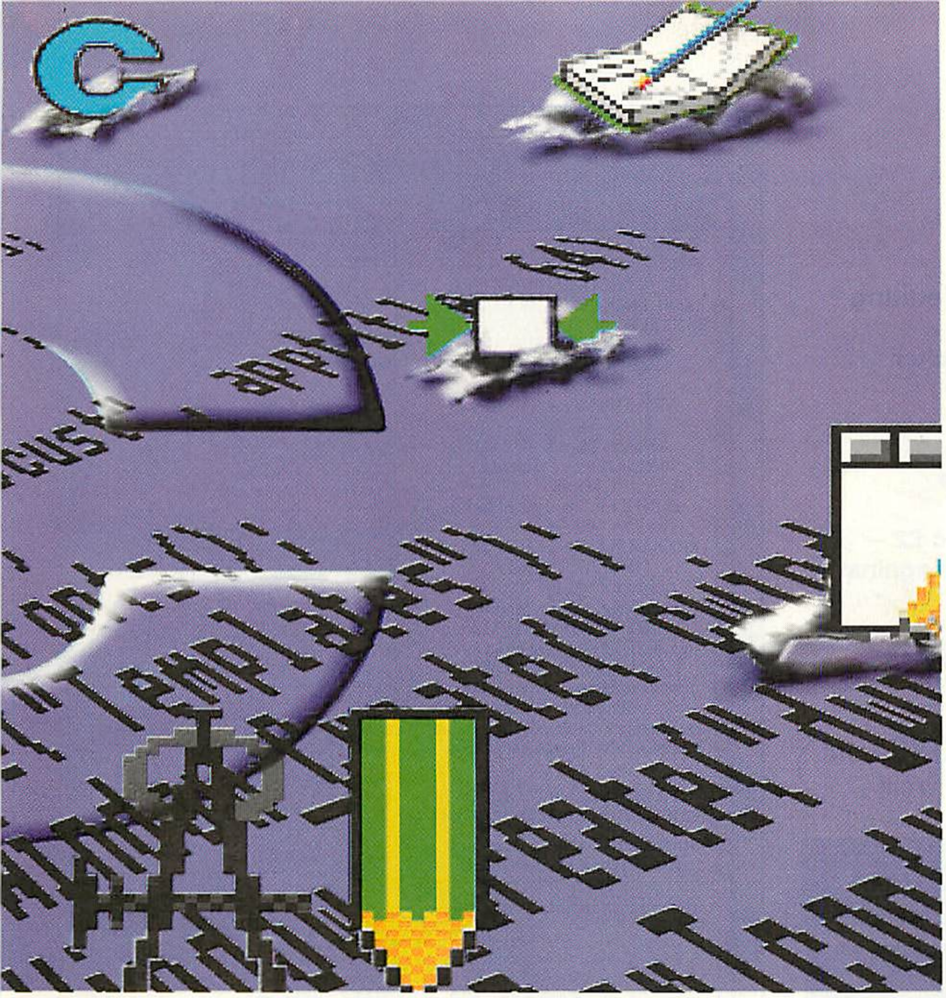
I find myself flicking through manuals on C quite regularly, normally to check up on some minor detail that's slipped my mind. It can take some time, especially if it's a nugget of information not listed in the index. It takes even longer if I've forgotten where I've put the book.

However, I've been sent a utility that aims to make the lives of many a programmer that much more bearable. It's been written by Gareth Boden of Maelstrom Software, and it aims to be a comprehensive reference to the language of ANSI C and its RISC OS additions. The information is displayed via Guttorm Vik's *StrongHelp* application, and encompasses details from C's basic commands to the intricacies of the Acorn compilers in an application that's the best part of a megabyte in length.

With all that information, there needs to be an easy method of accessing it, and that's where *StrongHelp* comes in, offering a form of window-based hypertext – when you open the C reference guide, you're presented with highlighted topics. Clicking on one of those opens another window about that heading, and there may well be further links you can follow until you ultimately find your goal.

I was initially surprised at how complete the package is; Gareth's done a remarkable job of covering the major aspects of the language and its Acorn-specific features. As well as documenting all the ANSI functions and macros, he's also explained the pre-processor directives, RISC OS functions for Acorn's *Desktop C*, Beebug's *Easy C* and the freeware library *Desklib*. In fact, *Easy C* is covered in tremendous detail – compiler and linker directives are documented, as well as its makefiles and libraries. Ideally, I'd like to see support for the newer compilers making their way into the market, but the version I've seen is still under construction, so we'll have to wait and see.

I've found Gareth's program to be particularly useful, and if you've ever grown tired of flicking through your manuals in order to check on a function's parameters, I'd strongly recommend you keep your eyes open and grab a copy as soon as it's released. For more information, Gareth can be contacted by e-mail on: gdb20@com.ac.uk



C for yourself

The above fragment will copy the string "Hello, World" to the file given by pointer, x being given a positive value if the function worked, or EOF if an error occurred. The major difference with this function is that it doesn't tack a newline or a null character on to terminate the string; it's up to you to do so if you require one.

```
char string[50];
int length = 50;
fgets(string, length, pointer);
```

The fgets() function will attempt to read a string from the file specified by pointer, stopping if it reaches a newline character or the end of the file, or if it's read length-1 characters. After one of these conditions has been satisfied, the string in memory is terminated with a null character. The function returns NULL if it came across the end of the file.

Using these functions in conjunction with the others you've learned will allow you to order your data into neat segments, ready for the techniques of random access described below.

Changing your position

The first of the functions concerning random access is rewind() and, as its name suggests, it takes the pointer you supply it with and resets the position of that file so any future read operations take their data from the beginning. Its syntax is simply:

```
rewind(pointer);
```

The next two commands are related, and they are ftell() and fseek(). The former returns a long integer corresponding to the current position within a file, and the latter allows you to jump to another point. Here's the structure of the ftell() function:

```
long position = 0L;
FILE *pointer;
pointer = fopen("file", "r");
position = ftell(pointer);
```

It's important to remember that ftell() will return a *long* integer, so set up your variables carefully. Once you've stored a position, you'll probably want to return to it some time in the future, so here's how the fseek() function is put together. The integer it returns will be zero if all is well; if you get a non-zero value, it's not been able to complete your request.

```
int x;
x = fseek(pointer, position, SEEK_SET);
```

The position in the file is specified by a combination of the last two parameters – the position variable is considered to be an offset, and you choose where you measure that offset from by using the third parameter. SEEK_SET takes the offset to be relative to the start of the file, SEEK_CUR measures it from the current position, and SEEK_END specifies an offset from the file's end. All three macros are defined in stdio.h, in case you're wondering where they've appeared from. To move your position back by twenty bytes, you would use:

```
x = fseek(pointer, -20, SEEK_CUR);
```

To go to a position ten bytes before the end of the file, you could use:

```
x = fseek(pointer, -10, SEEK_END);
```

These functions can be used in any combination to bounce the position in the file back and forth, and with careful planning of your file structure this will allow you to load sections of data as and when you want them. Used in conjunction with the *update* file mode discussed last month, you'll be able to load and edit files limited only by the disc space of your machine – apologies to those who don't have a hard disc.

Well, I think that's quite enough on file handling for now – the best way of learning is, as always, to have a go yourselves. Next month, I'll move on to more complicated data structures, and how they might be used to make the programmer's lot a little bit easier. AU

Acorn Customer hotline

Essential information for all Acorn users, compiled by Dave Walker of Acorn Customer Services exclusively for Acorn User.

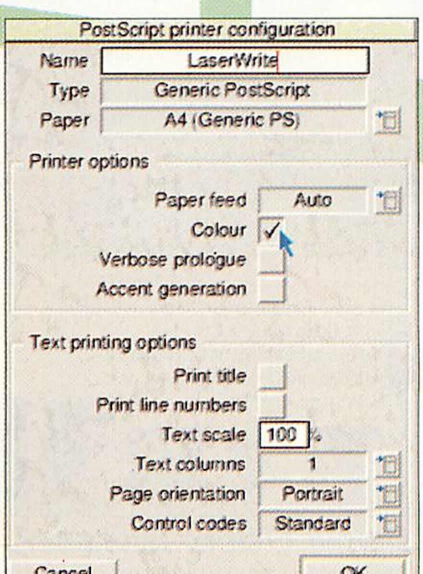
Questions and Answers

Q: How do I get my printer to print faster?

A: There are several points to note when looking at printing speed. If you are printing text or monochrome graphics using a colour printer, you can speed printing up considerably by turning colour printing off from the 'Configure...' dialogue box in *Printers*. Depending on the Printer Definition File you are using, it may also be possible to reduce the printing resolution if you need to produce draft hardcopy.

Printers works by claiming the computer's free RAM and allocating it to the sprite pool; the page to be printed is then built up in this sprite area buffer before the buffer contents are copied to the parallel device. The primary bottleneck on printing speed is the copying of this buffer space to the printer; if the buffer is sufficiently large so that all the information to be printed on a page can fit into the buffer at once and be copied as one block, printing is much faster than if the buffer has to be repeatedly filled, copied, flushed, re-filled and copied again in order to build up a page.

In short, printing is fastest when the maximum amount of free RAM is available before printing commences. On machines with little available free RAM, a useful hint is that, once *Printers* has been loaded, the modules required for printing remain resident until they are RMKILLed manually or the system is rebooted. Hence *Printers* can be loaded and configured, and then quit to free up more RAM for the page buffer.



Turn off the 'colour' option when printing in monochrome for faster printing – even on a colour printer.

When discs go wrong...

Occasionally, such as when power is interrupted during a write operation to a hard disc or contaminants get onto the surface of a floppy disc, disc errors occur. Some error codes are:

• From the IDE hard disc controller:
&02: IVC – Command aborted by controller
&07: WFL – Write fault
&08: NRY – Drive not ready
&09: NSC – Track 0 not found
&13: DFE – Uncorrected data error
&16: TOV – Sector ID field not found
&17: NIA – Bad block mark detected
&18: NDA – No data address mark
&20: No DRQ when expected
&21: Drive busy when commanded
&22: Drive busy on command completion
&23: Controller did not respond within timeout
&24: Unknown code in error register

• From the 82710/11 floppy disc interface, as fitted to the A5000, A4000, A3020 and A3010:
&01: Controller hardware error
&02: Command timed out; drive problem
&03: Track 0 not found; drive problem
&10: Seek fault
&20: Non-specific command error
&21: Data overrun
&22: Data CRC error
&23: Sector or ID not found
&24: Missing address mark

From the 1772 floppy disc interface, as fitted to the Archimedes A300, A400, A500, A3000 and R series:
&04: Lost data
&08: CRC error
&10: Record not found
&20: Write fault

From these tables, it is clear that some errors relate to the data on the disc and others to the drive itself; if you see an error &01, &02 or &03 from the floppy drive, or an error other than &13, &16, &17 or &18 from the hard drive, you should refer the problem to your Acorn dealer.

The integrity of the data structures on a disc can be tested by using the *CHECKMAP command; this searches through the directory structure of a disc and compares it to the record of the structure as stored in the directory headers.

If you find that you have any inconsistencies with your data, several products exist which are able to recover as much data as possible from a damaged disc; one of the popular packages is *Archimedes Disc Rescue*, available from Look Systems, Tel (01603) 764114, another is the Shareware package *Fsck*, available from PD libraries and ftp sites.

New Upgrades

Acorn *Advance* release 2 is now available; the improvements this version incorporates include twice the number of cells in the spreadsheet, and improved font handling in the wordprocessor. The upgrade costs £29.95 for single users, £39.95 for holders of primary site licences and £49.95 for holders of secondary site licences (all prices inc VAT), and is available from: Vector Services, 13 Denington Road, Wellingborough, Northants NN8 2RL while stocks last.

Please enclose your *Advance* program disc one (single users only) or site licence agreement as proof of purchase, and make cheques payable to 'Acorn Direct'. AU

Acorn Customer Services
Acorn Computers Ltd
Acorn House, Vision Park,
Histon, Cambridge CB4 4AE
E-mail: customer.services@acorn.co.uk

RiscPC Computer Systems

Acorn

RiscPC offers all the traditional strengths of RISC processing, and a great deal more. It is the world's most cost-effective 32-bit RISC based computer, producing astounding graphics and crystal clear sound. It's innovative design provides virtually unlimited upgrade capability, expanding as your needs increase. Built around the ARM 610 processor, RiscPC pushes computing to the limits, with it's intuitive operating system, support for up to 256Mb RAM, powerful 32-bit graphics and 16-bit sound system. RiscPC allows the use of foreign operating systems via it's unique second processor slot, thus opening up the world of DOS, Windows and Unix to name but a few. Access to CD-ROM and networking is also provided, making RiscPC an ideal multimedia or network station..

All RiscPC Systems include:

- ARM610 processor running at 30MHz
- RISC OS 3 v3.5 operating system
- 3.5" 1.6Mb Floppy Disk Drive
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- 1Mb or 2Mb Video RAM
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- 2nd processor slot
- 2 or 4 32-bit expansion bus slots
- 5.25" drive bay for CD-ROM drive
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0% Finance available on all RiscPC systems call for details

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- 1Mb Video RAM

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RiscPC 9M HD420 System

- 8Mb RAM
- 420Mb IDE Hard Disk Drive
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RiscPC Learn & Play System

- 2Mb RAM
- 210Mb IDE Hard Disk Drive
- Software bundle – 10/10 English, Number, French, Spelling, Junior Essentails, Virtual Golf, Haunted House, E-Type 2, Dungeon & Break 147

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** Only applies to above systems*

RiscPC Upgrade Options

Memory Options		
ARA0340/U	upgrade from 2Mb to 4Mb RAM	£69.00
ARA0350/U	upgrade from 4Mb to 8Mb RAM	£129.00
ARA0370/U	upgrade from 8Mb to 16Mb RAM	£249.00
ARA0410/U	upgrade from 1Mb to 2Mb VRAM	£79.00
Hard Disk Options		
ADA1520/U	upgrade from 210Mb to 420Mb IDE hard drive	£89.00
ADA1530/U	upgrade from 210Mb to 540Mb IDE hard drive	£159.00
ADA2320/U	upgrade from 420Mb to 1Gb SCSI hard drive	£459.00
GDA0330	270Mb Syquest IDE HDD (2 slices req'd)	£259.00
Monitor Options		
MKA1640/U	upgrade 14" to 15" Aries 6000i monitor	£89.00
MKA1670/U	upgrade 14" to 17" Acorn AKF85 monitor	£379.00
MKA0490/U	upgrade 14" to 20" Panasync Pro	£899.00
Miscellaneous Options		
AEA1650/U	upgrade to 486SX-33MHz PC Card	£99.00
AEA1890/U	upgrade to 16-bit Sound Card	£55.00
APA0410/U	upgrade to Dual Speed CD-ROM drive	£209.00
AOA0020	Aries XLink 14400 Fax Modem & ArcFax	£119.00
AOA0040	Aries XLink V34 Fax Modem & ArcFax	£219.00
AEA1640	Additional Case Module Kit	£99.00
GUA0230	3 year Extended On-Site Warranty	£ POA
AAA0600	Learning Curve software pack	£39.00
AAA0610	Home Office software pack	£85.00
AAA 0730	Early Years softwre pack	£39.00

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- 4Mb RAM
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One of the main uses of the RiscPC is Desktop Publishing. Utilising the immense processing power and high quality graphics, you will be able to produce professional quality documents in no time at all.

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- 2Mb Video RAM

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RiscPC 9M DTP System

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- 420Mb IDE Hard Disk Drive
- 2Mb Video RAM
- Impression Publisher
- Photodesk

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CD Software Bundle

- Acorn Replay Video Collection CD vol.1
- Illustrated Sherlock Holmes
- Illustrated Works of Shakespeare
- Kingfisher Children's Micropedia
- Pro Artisan v2 CD



Canon IX-4015 Colour Flatbed Scanner



The IX-4015 is a compact A4 flatbed scanner offering full 24-bit colour scanning up to a maximum resolution of 400 x 800 dpi. The scanner can also be used in 256 grey scale mode, up to 400 x 1200 dpi. The scanner comes complete with 16-bit SCSI interface, cables, and Twain drivers.

Offer Price (when purchased with DTP system) £599

Acorn 32-bit RISC Computer Systems



The entry level range of 32-bit RISC based computer systems, ideal for home, education or small business applications.
The A3010 is aimed at home use, with its built-in TV modulator, it will connect to a standard colour TV.
The A3020 is the standard education model, ideal as a network workstation or for stand-alone use with built-in hard drive.
The A4000 is designed for home and small business use, coming with a 210Mb hard drive and choice of monitor.
The A4 Notebook is for those who need a RISC OS machine on the move. Supplied with 4Mb RAM, hard disk and mouse.
*FREE CD-ROM Drive offer available until end June 1995

System	No Monitor	AKF52	AKF50
A3010 1M Action Pack	£229	–	–
A3010 2M Learning Curve	£299	£499	£569
A3010 2M Early Years	£299	£499	£569
A3020 2M FD	–	£589	£629
A3020 2M HD80	–	£729	£769
A4000 2M HD210	–	£819	£899
A4000 2M Learning Curve	–	£869	£939
A4000 2M Early Years	–	£869	£939
A4000 2M Home Office	–	£909	£979
A4 4M HD Notebook	£1269	–	–

CD-ROM & Multimedia

Cumana CD-ROM Drives

All Cumana CD-ROM drives are supplied with all connecting cables, driver software and interfaces where necessary.



Oscar CD-ROM Drive

A low cost drive which connects to the parallel port of an A3010,A3020,A4000 or A5000.

- Oscar CD-ROM Drive - Parallel Port £199

Bravo CD-ROM Drive

A range of low cost high performance drives which have a built-in audio mixer.

- Bravo CD-ROM Drive - Parallel Port £249
- Bravo CD-ROM Drive - A300/A400/A5000 £249
- Bravo CD-ROM Drive - A3000/A4000 £249
- Bravo CD-ROM Drive - EMU* £249

Victor CD-ROM Drive

A SCSI based CD-ROM drive system fot those who require improved performance over the SLCD type.

- Victor CXX402A CD-ROM Drive - SCSI £289

Indigo CD-ROM Drive

A range of internal fitting CD-ROM drives for use with the RiscPC computer system.

- CAA300i CD-ROM Drive - IDE £189
- CAA300iA CD-ROM Drive - IDE £219
- CAA401 CD-ROM Drive - SCSI £189

Speakers & Accessories



- Aries Stereo Speakers £6
- Aries Hi-Fi Stereo Speakers - 10W £19
- Aries Hi-Fi Pro Stereo Speakers - 25W £28
- Aries Digital Stereo Speakers - 25W £39
- Aries Digital Plus Stereo Speakers - 70W £48
- Aries Microphone £4.50
- Aries Stereo Headphones £4.50

CD-ROM Software

Some titles require additional software to run under RISC OS. These are marked as follows:
EB - Electronic Books : PaperOut software required
PD - PDSView software required

- PDSView £99
- PaperOut - Electronic Book player £49

Art, Graphics & Design

- Artworks v1.5 £129
- Artworks Clipart CD v1 £19
- Artworks Clipart CD v2 £19
- Art in the National Curriculum £75
- Pro Artisan v2 £136

English & Literature

- Goldilocks £39
- Granny's Garden £30
- Illustrated Works of Shakespeare £23
- Karaoke Macbeth £49
- Karaoke Midsummer Night's Dream £49
- Living Poetry £49
- Listen & Read (EB) £39
- Oxford Reading Tree Talking Stories £39
- Sherlock Holmes £23
- Sherston Naughty Stories £79

Geography, Nature & Environment

- British Birds £150
- Creepy Crawlies £49
- Counties of Great Britain £39
- Countries of the World £39
- Dictionary of the Living World £89
- Earth Guide (EB) £39
- Environment: Land & Air £97
- Environment: Water £97
- Environment: Climate Change £34
- Environment: Dwindling Resources £34
- Environment: Conservation £34
- Garden Wildlife £39
- Langdale Primary £99
- Map Skills £49
- Seahore Life £39
- The Physical World £97
- Usborne Exploring Nature £125
- The World's Weather £47

History

- Castles £39
- Changing Times £125
- Frontier 2000 £109
- Industrial Revolution £105
- Medieval Realms £145
- Photobase: Victorians £49
- Picturebase: Victorian Britain £99
- World War II: Global Conflict £97
- World War II: Sources & Analysis £97
- World of the Vikings £39

Languages

- Directions 2000: French £137
- En Marcha: Spanish £137

Mathematics

- Cars - Maths in Motion £49
- Number Games £79
- Perspectives £79
- Picture Gallery £79
- Who Stole the Decimal Point? £79

Science & Technology

- Chemistry Set £149
- Science & Technology Library (EB) £39
- Collins Electronic Food File (EB) £29
- Science: Elements £97
- Science: Materials £97
- Inventors & Inventions £147
- Photobase: Science £49
- Understanding the Body £39
- Understanding Energy £47

Space & Astronomy

- Space Encyclopaedia £34
- Space Science Sampler (PD) £40
- Voyager Spacecraft (PD) £200

Educational Resources

- Acorn Video Collection Disc 1 £10
- Bitfolio 6 - clipart images £49
- Horizon Report £19
- Photobase: 1920's £49
- Photobase: 1930's £49
- Photobase: 1940's £49
- Photobase: 1950's £49
- Photobase: 1960's £49
- Photobase: Landscapes £49
- Sermec Treasure Chest £69
- SSERC Graphics Collection £99

Dictionaries & Encyclopaedia

- 19th Century Biographies £25
- CIA World Fact Book (EB) £29
- Oxford English Dictionary (EB) £29
- Hutchinson Gallup Info (EB) £29
- Hutchinson Guide to the World (EB) £29
- Hutchinson Encyclopaedia £49
- Kingfisher Children's Micropedia £88
- Times & Sunday Times £178
- Times & Sunday Times Sampler £50
- Tekkie CD - Acorn PRM's on CD £99

Pocketbook



The truly portable computer. With built-in word processor, spreadsheet, database, spelling checker and calculator, it provides all the basic tools for recording ideas, notes & data.

- **Pocket Book 256K Computer £165**
- **Pocket Book II 256K Computer £219**
- **Pocket Book II 512K Computer £269**

Pocket Book Accessories

- A-Link £40
- Parallel Link £25
- MAC Link £65
- PC Serial Link £59
- Leather Case £21
- Schedule £16
- Schedule Class Pk £160
- Plotter £25
- Plotter Class Pack £250
- 128K RAM Disk £49
- 256K Flash Disk £59
- 512K Flash Disk £85
- OPL Editor £59
- Mains Adaptor £12

Aries Fax Modems

Enter the realm of high speed communications with the new Aries XLink range of fax modems. Two versions are available - standard 14400bps V32bis or high speed 28800bps V34 model. Error correction and data compression are standard on all models, so faxing and data transmission overseas will not cost the earth.

When used with ArcFax software, you can send a fax directly from your RISC OS desktop, as easily as printing a document.



- 14400bps V32bis or 28800bps* V34 data transmission speed
- V32, V32bis, V22, V22bis and V21
- Error correction to MNP2-5 and V42 standards
- Data compression to MNP5 and V42 standards
- Call back security
- Synchronous & Asynchronous operation
- Group 3, Class I & II Fax at up to 14400bps (V17)
- Group 1 and 2 Fax compatible (V27ter and V29)
- 100% Hayes compatible
- 3 year manufacturers warranty
- BABT approved

- **Aries XLink XL144e Fax Modem £89**
- **Aries XLink XL144e Fax Modem & ArcFax software £119**
- **Aries XLink XL288e Fax Modem £185**
- **Aries XLink XL288e Fax Modem & ArcFax software £215**

* note 28800bps speeds only available when used with a RiscPC

Flatbed Scanners

Canon IX-4015 Scanner

Canon



The IX-4015 is a compact A4 flatbed scanner offering full 24-bit colour scanning up to a max resolution of 400 x 800 dpi. The scanner will also scan 256 grey scale images with a max resolution of 400 x 1200 dpi.

- 400 x 800 dpi resolution in colour
- 400 x 1200 dpi resolution in monochrome
- Connection via SCSI interface (not included)
- ImageMaster scanning software
- TWAIN driver software

£569

- Auto Document Feeder - IX-4015 **£249**

HP ScanJet 3C Scanner

The ScanJet 3C is an A4 flatbed scanner capable of producing full 24-bit colour scans at a maximum resolution of up to 1600 dpi.

- 400 x 400 optical resoluton
- 24-bit colour and grey scale modes
- A4 scanning area (216 x 297mm)
- Connection via SCSI interface
- ImageMaster scanning software
- TWAIN drivers

£699

- **Auto Document Feeder - ScanJet 3C £365**
- **Transparency Adapter - ScanJet 3C £499**

SCSI Interfaces

- 16-bit SCSI Interface (A300/A400) £89
- 32-bit SCSI-2 Interface for RiscPC £159
- SCSI-2 Interface Cable £20

Software

- upgrade to Spacetech Photodesk software £119
- Sleuth OCR software £40

Aries Monitors

EnergyPro 14" LR

- 14" hi-res 0.28mm dot pitch tube
- Low Radiation MPRII standard
- 800 x 600 resolution
- Tilt and swivel base
- Horiz frequency - 29KHz to 70KHz

£159

Alphascan Pro LR

- 14" hi-res 0.28mm dot pitch tube
- Low Radiation MPRII standard
- 1280 x 1024 @60Hz
- 1024 x 768 @72Hz
- Horiz frequency - 29KHz to 70KHz

£199

15" EnergyPro 6000i

- 15" hi-reso 0.28mm dot pitch tube
- Low Radiation MPRII standard
- EPA Energy Star compliant
- 1280 x 1024 @ 60Hz
- Horiz frequency - 29KHz to 70KHz

£239

17" EnergyPro 7560i

- 15" hi-reso 0.28mm dot pitch tube
- Low Radiation MPRII standard
- EPA Energy Star compliant
- 1280 x 1024 @ 60Hz
- Horiz frequency - 29KHz to 70KHz

£419

Hard Drives

A300/A400 IDE Hard Drive Upgrades
Complete with drive, interface, mounting kit, cables and software.

- ADA0580 365Mb 11ms £179
- ADA2030 420Mb 11ms £199
- ADA2210 540Mb 12ms £219

A5000/RiscPC IDE Hard Drive Upgrades
For use as replacement of existing drive.

- ADA0880 365Mb 11ms £119
- ADA2060 420Mb 11ms £149
- ADA2220 540Mb 11ms £399

- 2nd Drive Accessory Kit £10

IDE Interfaces & Accessories

- 8-bit IDE interface for A3000/A3010 £59
- 16-bit IDE Interface for A300/A400 £39
- Dual IDE Interface Cable £9

A3000/A3010 Internal IDE Hard Drives
Complete with drive, interface and software.

- ADA2360 170Mb 13ms £199
- ADA2090 340Mb 11ms £299
- ADA2200 510Mb 11ms £399

A300/A400 SCSI Hard Drive Upgrades
Complete with 16-bit interface, drive, cables and mounting kit.

- ADA2300 365Mb 12ms £249
- ADA2310 540Mb 11ms £299
- ADA2320 1.0Gb 9ms £499
- ADA2330 2.0Gb 10ms £849

SCSI Interfaces & Accessories

- 16-bit SCSI Interface - A300/A400 £89
- 32-bit SCSI II Interface RiscPC £159
- Dual SCSI Interface Cable - ribbon £9
- SCSI Interface Cable - round £15

Networking

Acorn Ethernet Network Interface Cards

- Acorn Ethernet Card - A5000 £149
- Acorn Ethernet Interface - RiscPC £99

Access+ Peer-to-Peer Networking

Simple, easy to use networking system allows you to share hard disks, CD-ROM and printers. Using industry standard Ethernet cabling, you have a flexible system that can grow as your requirements do.

- Access+ for A3000 £129
- Access+ for A3020/A4000 £129
- Access+ for A5000 £129
- Access+ for RiscPC £95
- Access+ CD Share software £95

i-Cubed Ethernet Network Interface Cards

- EtherLAN 102 BNC/TP - A3000 £125
- EtherLAN 200 BNC - A3020/A4000 £135
- EtherLAN 201 TP - A3020/A4000 £135
- EtherLAN502 BNC/TP - A5000 £125
- EtherLAN602 BNC/TP - RiscPC £105

Ethernet Hubs

- Aries EH-8 8port Ethernet Hub £129
- Aries EH-16 16port Ethernet Hub £279
- Aries EH-32 32port Ethernet Hub £459

Ethernet Cabling

Cable Length	Thinnet	UTP
3m	£5	£4
5m	£6	£6
10m	£8	£9
20m	£15	£16

Connectors and Accessories

- BNC 50ohm Terminator £0.95
- BNC T-connector £1.75
- BNC In-line coupler £1.75

Networking Software

- Level 4 Fileserver Release 3 £359
- TCP/IP Protocol Suite - single user £99
- OmniClient £235
- InterTalk £75

Upgrades & Accessories

RISC OS Upgrades

- Software Upgrade - all machines £74
- Carrier Board - A300/A440 machines £21
- Software Upgrade - Bulk 10 Pack £319

Memory Upgrades

Model	2Mb	4Mb	8Mb
A3000	£49	£119	-
A3010	£59	£139	-
A3020/A4000	-	£89	-
A5000	-	£79	£269
A540/R260	-	£249	-

RiscPC Additional RAM Modules

2Mb	£79	4Mb	£105
8Mb	£225	16Mb	£345
32Mb	£POA	64Mb	£POA
1Mb VRAM	£89	2Mb VRAM	£159

Graphics/Sound Cards

- Acorn RiscPC 16-bit Sound Card £59
- CC ColourCard Gold - A300/A400 £239
- CC Eagle M2 Multimedia Card £319
- CC Hawk V9 MK2 Digitiser £189
- CC Chroma 500 Genlock Card £419
- CC Chroma 150 PAL Encoder £169
- CC Chroma Genlock Card £209
- CC TV Tuner £89
- CC TV Tuner & Teletext £159
- CC Movie Magic MPEG Card £249
- CC ScanLight Video 256 £199
- CC ScanLight 256 - A3000 Internal £189
- HCCS Vision24 254 line Digitiser £99
- HCCS Vision24 508 line Digitiser £149
- WE Scan256 handscanner - A5000 £115
- WE Scan256 handscanner - A3000 £125
- WE A4 Mono Scaner & Feeder £199
- WE Multiscan VIDC Enhancer £10
- WE SuperVGA VIDC Enhancer £15

Ultimate Expansion

Increase the expansion possibilities of your Acorn computer with the Ultimate Expansion system. In its simplest form it is a standard internal podule with built in user port and also space for a 2.5" IDE hard disk drive. Up to 3 micro podule slots are provided for other uses such as analogue port, video digitiser or even SCSI interface.

- Ultimate Expansion Interface £39
- Ultimate Expansion Interface & IDE £99
- Ultimate Expansion with 170Mb drive £249
- Ultimate Expansion with 340Mb drive £299

Micro Podules for Ultimate Expansion

- SCSI Interface £69
- Vision24 Colour Digitiser £99
- ScanLight 256 handscanner £229
- MIDI Interface £49
- Analogue Interface £29

I/O Cards

- A3000 I/O Card - User/Analogue £25
- A3000 User Port/MIDI Card £44
- A300/A400 I/O Card - User/Analogue £29

Miscellaneous Add-Ons

- A300 4 way Backplane £25
- A300/A400 Fan £10
- A3000 Serial Port Upgrade £18
- ARC to BBC Serial Transfer Link £15
- MEMC1A Upgrade Kit £29
- Floating Point Accelerator - A5000 £89
- A4 Notebook Battery Pack £45
- 25MHz ARM3 Turbo Card £149
- Sportster 14.4 Modem & ArcFax £159
- Sportster 28.8 Modem & ArcFax £239
- DataSafe 120Mb Portable Tape Drive £399

PC Cards

- 486 25MHz 0Mb PC Card - A5000 £339
- 486 50MHz 0Mb PC Card - A5000 £399
- 4Mb RAM module £125
- 8Mb RAM module £249
- 16Mb RAM module £399
- MS-DOS 6.2 & Windows 3.11 £89

RiscPC 486 PC Card

Add PC functionality to your RiscPC with the 486SX-33 2nd processor card

Introductory Offer Price **£99**

Accessories

Dustcovers & Carry Cases

- A3000 Keyboard cover £5
- A3000 Keyboard & Monitor cover £9
- A300/A400 Micro & Monitor cover £9
- A5000 Micro & Monitor cover £9
- 14" Monitor cover £6
- A3000/A3010 Carry Case £10
- A4 Notebook Carry Case £35

Mice & Joysticks

- Archimedes MK4 Mouse £24
- Acorn Logitech Mouse £27
- Quest Tracerball £20
- PowerPad Single Joypad £25
- PowerPad Dual Joypad £34

Miscellaneous Accessories

- A3000 Monitor Stand £15
- A3000 External Podule Case £10
- ARC Keyboard Extension Cable £5
- ARC Mouse Port Splitter £5

We stock the complete range of spare parts call for prices and availability.

Concept Keyboards

- A4 2010 Concept Keyboard £99
- A3 2010 Concept Keyboard £109
- 2010 BBC User Port Cable £12
- 2010 Archimedes Serial Cable £12
- ARC Concept Keyboard Design S/W £20

Multiscan Monitors

- Acorn AKF52 - 14" £219
- Acorn AKF50 - 14" £279
- Acorn AKF60 - 14" £299
- Acorn AKF85 - 17" £599
- Panasonic TX-D1732 - 17" £479
- Panasonic TX-D2131 - 21" £1359
- Sony CPD-15SF1 - 15" £287
- Sony GDM-17SE1 - 17" £819
- Sony GDM-20SE1 - 20" £1425
- Taxan EV400 LR - 14" £190
- Taxan Ergovision 580 LR - 15" £275
- Taxan Ergovision 880 LR - 17" £520
- Taxan Ergovision 2100 LR - 21" £1530

Diskettes

Excel Diskettes - Lifetime Guarantee

- Excel 3.5" DSDD Diskettes - 10pk £6
- Excel 3.5" DSHD Diskettes - 10pk £7
- Excel 3.5" DSHD Diskettes - 50pk £22

3M/Verbatim Diskettes

- 3.5" DSDD Diskettes - 10pk £6
- 3.5" DSHD Diskettes - 10pk £7
- 5.25" DSDD 80T Diskettes - 10pk £7
- 5.25" DSHD Diskettes - 10pk £10

Educational Discounts

available on some products to Schools, Colleges & Universities

Call 01582 745555 for details

Printers

Laser Printers

Brother HL630	6ppm	£324
Brother HL660	6ppm	£464
Canon LBP 4i*	4ppm	£395
Canon LBP430W	4ppm	£363
Canon LBP1260	12ppm	£909
Epson EPL-3000*	4ppm	£389
Epson EPL-5200*	5ppm	£471
HP Laserjet 4L	4ppm	£365
HP Laserjet 5P	5ppm	£587
HP Laserjet 4 Plus	12ppm	£938
HP Laserjet 4V - A3	16ppm	£1368
HP Laserjet Colour	2ppm	£4395
OKI OL-400ex	4ppm	£289
OKI OL-410ex	4ppm	£399
Panasonic KX-P4400	4ppm	£270
Panasonic KX-P4401	4ppm	£330
Panasonic KX-P4410**	5ppm	£318
Panasonic KX-P4430**	5ppm	£479
Panasonic KX-P4440**	10ppm	£679

All printers are covered by 12 months RETURN TO BASE warranty unless stated differently as below:
* = 12 months On-Site Warranty
** = 2 years On-Site Warranty

Inkjet Printers

Canon BJ200ex	80col	£170
Canon BJ30	80col	£153
Canon BJ230	132col	£247
Canon BJ300	80col	£364
Canon BJ330	132col	£404
Canon BJC4000 Colour	80col	£232
Canon BJC600e Colour	80col	£344
Canon BJC70 Colour	80col	£229
Canon BJC800 Colour	132col	£1065
Epson Stylus 800+	80col	£181
Epson Stylus Colour	80col	£350
Epson SQ870	80col	£453
Epson SQ1170	132col	£609
HP DeskJet 320	80col	£165
HP DeskJet 320 & CSF	80col	£180
HP DeskJet 540	80col	£209
HP DeskJet 660 Colour	80col	£294
HP DeskJet 850 Colour	80col	£391
HP DeskJet 1600 Colour	80col	£920
HP PaintJet XL300 - A4	80col	£1599
HP PaintJet XL300 - A3	132col	£1769
Star SJ144	80col	£285

24pin Matrix Printers

Citizen ABC	80col	£103
Citizen ABC Colour	80col	£125
Citizen Swift 240X	132col	£219
Epson LQ150	80col	£112
Epson LQ150 Colour	80col	£158
Epson LQ570+	80col	£217
Epson LQ1070+	132col	£303
Epson LQ1170	132col	£441
Epson DLQ3000 Colour	132col	£672
Pansonic KX-P2023	80col	£108
Pansonic KX-P2135 Col.	80col	£124
Pansonic KX-P2124	80col	£198
Pansonic KX-P3626	132col	£259
Star LC24-15 II	132col	£232
Star LC24-300	80col	£188
Star LC240	80col	£92
Star LC240 Colour	80col	£103
Star XB24-200 Colour	80 col	£329
Star XB24-250 Colour	132col	£395

9pin Matrix Printers

Citizen Swift 90	80col	£114
Citizen Swift 90 Colour	80col	£121
Citizen Swift 120D+ Parallel	80col	£90
Citizen Swift 120D+ Serial	80col	£105
Epson LX300	80col	£98
Epson FX870	80col	£245
Epson FX1170	132col	£304
Epson DFX5000+	132col	£1095
Panasonic KX-P1150	80col	£259
Panasonic KX-P3696	132col	£259
Star LC15	80col	£177
Star LC100 Colour	132col	£89
Star LC90	80col	£89
Star ZA200 Colour	80col	£255
Star ZA250 Colour	80col	£315

Printer Accessories

Memory Upgrades

Type	1M	2M	4M
Canon LBP-4+	£139	–	–
Canon LBP-8 IV	£129	–	£299
Epson 5200/5600	£58	£115	£215
HP III/IIIP/IIID	£75	£115	£135
HP II/IID	£75	£115	£135
HP 4L/4MI	£75	–	–
HP 4/4M/4P/4AV	£75	£85	£125
Pan 4420/4450	£75	£115	£135
Pan 4410/4430	£129	£199	–
Pan 4400/5400	£89	£139	£229
OKI OL400ex	£99	£118	–
Star LS-5	£75	–	–

HP DeskJet 500 256K RAM	£75
Panasonic 32K Buffer - Matrix range	£16

Laser Consumables

Type	Toner	Drum	Dev
Brother HL630	£20	£99	–
Canon/Star 4s	£46	–	–
Canon LBP-8 IV	£70	–	–
Epson 4100/4300	£75	£89	–
Epson 5200	£85	–	–
HP III/IIID	£47	–	–
HP IIP/IIIP	£46	–	–
HP 4/4M	£72	–	–
HP 4L/4ML/4P/4MP	£49	–	–
OKI OL-400/800	£19	£189	–
OKI OL-400ex	£17	£129	–
Pan 4410/4430	£29	£80	£90
Pan 4440	£32	£108	£115
Pan 4420	£24	£60	£55
Pan 4450//51/55	£18	£75	£60
Pan 4400/5400	£12	£69	–
Star LS-5	£83	–	–

Sheet Feeders

Canon BJ10ex/BJ10sx		£40
Canon BJ300	Std: £88	2nd: £88
Canon BJ330	Std: £92	2nd: £92
Citizen Swift 200/240		£75
Epson LQ570/LQ870	Std: £47	Hi: £139
Epson LQ1070/1170	Std: £89	Hi: £207
HP DeskJet 320		£48
Panasonic 1170/1180/1123		£59
Panasonic 1124/2124		£79
Panasonic 1624/2624		£128
Panasonic 2135/1150		£30
Star LC100		£69
Star LC24-20		£69
Star LC200/LC24-200		£69

Tractor Feeders

Epson LQ100/150	£29
Epson LX300	£18
Epson LQ570 Pull	£39
Epson FX/LQ870	£45
Epson FX/LQ1170	£65

Colour Kits

Citizen Swift 24/200/240	£36
Citizen ABC	£22
Epson LX300/LQ300	£33
HP DeskJet 320/540	£28
Panasonic 2180/2123/2124	£32

Ribbons/Ink Cartridges

(Manufacturers Original Ribbons Only)

Type	Black	Colour
Canon BJ10ex/sx	£14	–
Canon BJ200/BJ230	£16	–
Canon BJ300/BJ330	£11	–
Canon BJC4000	£8	£13
Canon BJC600	£7	£8
Canon BJC800/820	£16	£22
Citizen 120D+	£4	–
Citizen Swift 200/240	£4	£12
Citizen Swift 24X	£8	£18
Epson LX400/850/FX870	£4	–
Epson LX100	£4	–
Epson LQ100	£5	–
Epson LQ150	£4	£12
Epson LQ570/870	£5	–
Epson LQ1070/1170	£8	–
Epson Stylus 800/1000	£10	–
Epson Stylus Colour	£15	£21
Epson SQ870/SQ1170	£26	–
Fujitsu B100/B200	£18	–
HP DeskJet 500 Series	£20	£21
HP DeskJet 660	£22	£23
HP DeskJet 850	£22	£23
HP DeskJet 310/320	£15	£21
HP DeskJet 1200	£20	£21
HP PaintJet XL300	£16	£18
Kaga/Taxan 810/815	£5	–
Pan 1170/1180/1150	£7	–
Pan 1123/1124	£7	–
Pan 2180/2123/2124/2135	£7	£14
Pan 1624/2624	£8	–
Pan 3626/3696	£11	–
Star LC10/20/100	£5	£9
Star LC200	£5	£11
Star LC24-20/24-200/240	£5	£12
Star LC24-30	£8	£12
Star ZA/XB24-200/ZA250	£5	£12
Star SJ48	£16	–
Star SJ144	£5	£8

Miscellaneous

Canon BJ10sx Battery Pack	£33
Epson 0K Serial Interface	£29
Epson 8K Serial Interface	£75
Epson 32K Serial Interface	£95
HP DeskJet 500 FX Emulation Cart.	£49
HP DeskJet 500 Dustcover	£6
HP DeskJet IBM Emuation Cart	£57
HP DeskJet 320 Battery Pack	£33
HP DeskJet 320 Parallel Cable	£12
HP DeskJet 1200 PostScript SIMM	£499
HP DeskJet Prestige Elite Font Cart	£55
HP DeskJet Letter Gothic Font Cart	£56
HP LaserJet IIIP Lower Cassette	£115
HP LaserJet 4 Lower Cassette	£205
HP LaserJet 4Si Duplex Unit	£475
HP LaserJet Font Cartridges	from £45
HP LaserJet FX/IBM Emulation cart	£79
HP LaserJet 4P A5 Paper Feeder	£85
HP LaserJet 4 Envelope Feeder	£199
Panasonic KX-P4420 Ozone Filter	£9
Panasonic KX-P4450 Ozone Filter	£20
Panasonic Serial Interface	£49
Star 8K Serial Interface - LC range	£52
Star 8K Serial Interface XB/ZA	£39
Dustcover for 80 column printers	£6
Dustcover for 132 column printers	£10
80 column Perspex Printer Stand	£12
132 column Perspex Printer Stand	£18

On-Site Warranties

Model	1 year	3 year
Brother LH630/631/660	£34	–
HP Mono DeskJets	£32	£40
HP Colour DeskJets	£45	£85
HP LaserJet 4L/4P	£78	£100
HP LaserJet 4+4M+	£135	£185
HP LaserJet 4V/4MV	£425	£485

Ink Refill Packs

Canon BJ10sx & BJ200/230 2 pack	£12
Canon BJ300/BJ330 2 pack	£12
HP DeskJets Hi-Capacity 2 pack	£24
HP DeskJets Hi-Capacity 5 pack	£35
HP DeskJet Colur Refill	£49

Compatible Ink Cartridges

Black Cartridge for Canon BJC800	£10
Colour Cartridge for Canon BJC800	£12
Black Cartridge for Canon BJC600	£25
Colour Cartridge for Canon BJC600	£26
Black Cartridge for Epson Stylus Col.	POA
Colour Cartridge for Epson Stylus Col.	POA

Paper & Labels

A4 Cut Sheet Paper - 500 sheets

A4 90g Laser/Inkjet Paper	£7.00
A4 80g Laser/Copier Paper	£3.00
A4 80g Coloured Paper	£3.50

Inkjet Paper & Transparencies

Canon BJC A4 Transparency (50)	£39.00
Canon BJC A4 Paper (50)	£22.00
Canon BJC800 A3 Paper (50)	£45.00
Epson Stylus 360dpi A4 Paper (50)	£17.00
Epson Stylus 720dpi A4 Paper (50)	£19.00
Epson Stylus A4 Transparency (50)	£59.00
HP DeskJet Glossy A4 Paper (50)	£35.00
HP DeskJet A4 Transparency (50)	£35.00
HP DeskJet A4 Paper (200)	£15.00
Image+ A4 Glossy Paper (50)	£28.00
Image+ 90g A4 Paper (200)	£10.00
Image+ 100g A4 Paper (200)	£12.00
Image+ 120g A4 Paper (200)	£14.00
Image+ A4 Transparency (50)	£28.00

Fanfold Paper

1000 60g 9.5" x 11" - 1pt	£6.50
2000 60g 9.5" x 11" - 1pt	£11.00
1000 60g 9.5" x 11" - 2pt	£21.00
700 60g 9.5" x 11" - 3pt	£28.00
1000 60g 15" x 11" - 1pt	£8.00
2000 60g 15" x 11" - 1pt	£14.50
1000 70g True A4 - 1pt	£9.00
2000 70g True A4 - 1pt	£15.00

Continuous Fanfold Labels

1000 89mm x 36mm Single Row	£4.50
1000 89mm x 36mm Twin Row	£4.80
1000 89mm x 49mm Single Row	£4.95
1000 102mm x 36mm Twin Row	£4.70

Laser Lables (on A4 sheet)

2400 70mm x 37mm (3x8)	£15
2100 70mm x 37mm (3x7)	£15
1600 105mm x 35mm (2x8)	£17
1400 105mm x 38mm (2x7)	£16

Printer Sharers

Manual Printer Sharers

Connects	Serial	Parallel
2in/1out	£12	£13
2in/2out	£28	£29
3in/1out	£15	£17
4in/1out	£24	£26
5in/1out	£27	£28

Note: Serial sharers have 25-way 'D' type female connectors and parallel sharers have 36-way Centronics connectors

Automatic Parallel Printer Sharer Buffers

Type	0Kb	256K	1Mb
2in/1out	£29	–	–
2in/2out	–	£105	£134
4in/1out	£45	–	–
4in/2out	£69	£124	£149
8in/1out	£64	–	–

Automatic Serial Printer Sharer Buffers

Type	0Kb	256K	1Mb
2in/1out	£27	–	–
2in/2out	–	£124	–
4in/1out	£44	–	–
4in/2out	£69	£147	–
8in/1out	£62	–	–

Note: All automatic sharers and buffer products have 25way 'D' female connectors.

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Software

As one of the largest dealer in Acorn software in the UK, we doubt that you will find any of the titles listed here cheaper alsewhere.

Also if there is something you don't see listed, give us a call and we will attempt to source it for you and give you the best price.

All software requires at least 1Mb RAM and RISC OS operating system.

Special notes
† - not suitable for RiscPC
†† - requires 2Mb RAM
‡ - hard disk required

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*info

Dave Lawrence and Dave Acton present more programs, tips and techie trivia from beyond the PRM.

That's about the size of it

Author: Darren Salt

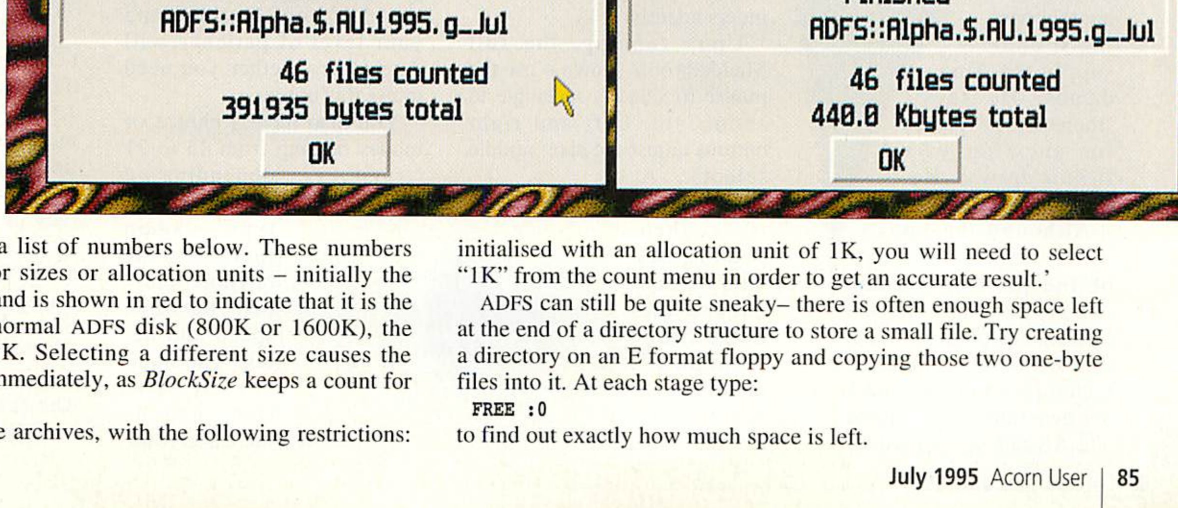
This is a small utility which counts the disc space used by files. Doesn't 'Count' do that? Well, no. Count adds up the lengths of individual files, so two files of one byte each would count as two bytes, but if you copied these two files onto disc, you'd find they'd take up a lot more. How often have you Count'ed a batch of files that would seem to fit onto an 800K disc but actually take up an awful lot more? Count also neglects to count the space taken up by any directory – the file names and other information have to be stored somewhere. Those two one-byte files can quite easily take up 3K of disc space.

Darren Salt's *BlockSize* program gives a much more accurate gauge of the amount of disc space a bunch of files take up.

'All you need to do is drag one or more files or directories to the *BlockSize* icon,' says Darren. 'A window looking like that for a normal Filer count operation will be opened; indeed it works like a Filer action window. It has its own menu, with a 'Faster' option at the top (working much as its Filer equivalent), and a list of numbers below. These numbers represent various sector sizes or allocation units – initially the sector size is selected (and is shown in red to indicate that it is the sector size), so for a normal ADFS disk (800K or 1600K), the selected size will be 1K. Selecting a different size causes the display to be updated immediately, as *BlockSize* keeps a count for each possible size.

'*BlockSize* can handle archives, with the following restrictions: if you drag the archive to *BlockSize*, or if it encounters an archive, it is treated as a file; the archive contents, if dragged to *BlockSize*, are treated as if not archived. Directories normally occupy 2K each, but in *ArcFS* archives they are stored with length = -1, and in *Spark* archives with length &29*(number of entries)+2. On DOS-format disks, the size is a multiple of 512 bytes (16 bytes per entry). Therefore, *BlockSize* quite reasonably assumes that all directories require 2K.

'Note that with some filing systems the sector size may be different from the allocation unit. If, for example, you have a hard disc formatted with a sector size of 512 bytes, but has been



initialised with an allocation unit of 1K, you will need to select "1K" from the count menu in order to get an accurate result.'

ADFS can still be quite sneaky– there is often enough space left at the end of a directory structure to store a small file. Try creating a directory on an E format floppy and copying those two one-byte files into it. At each stage type:

```
FREE :0
```

to find out exactly how much space is left.

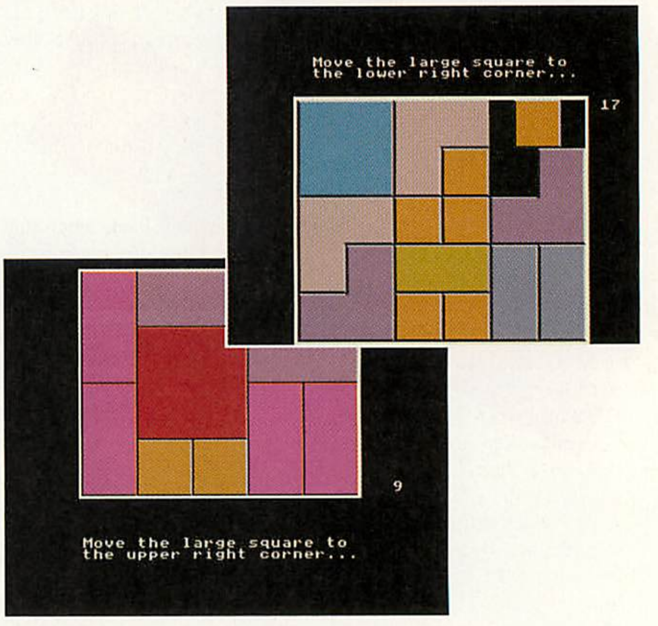
A bit on the slide

Author: Torben Osted

Everyone must have played with a sliding block puzzle at some point, if you haven't then how come? There is, after all, a desktop version supplied with every Acorn machine. With Torben Osted's submissions though, the sliding block puzzle well and truly grows up.

'Traditional' puzzles have always been square with (usually) 15 square pieces in a 4x4 grid – of course there have been different aspect ratios but in all cases the method of solution has been the same. You may have seen a puzzle called King Out which is a sliding block puzzle in all respects, except that it contains some non-unit square pieces. The idea was to release the king (a 2x2 square) from a board made up from two 1x2 pieces, two 2x1 pieces and four 1x1 pieces. Torben's first puzzle, *DAD,* is quite similar – move a 2x2 piece into the corner negotiating around the 1x1s, 2x1s and 1x2s. You should be able to do this in 74 moves; if you get stuck, Torben has supplied an animated solution (*DAD2*). The second puzzle, *Tidbits,* is rather more tricky – 289 moves required – and also contains some non-rectangular L shaped pieces. Eeek! Again, the solution is provided, for the weedy among us.

Seeing these puzzles has revived interest in a long standing *INFO possibility – that of a user-definable sliding block puzzle. Keep watching and this might actually happen.



Mini, Midi, Mivi

Author: Mr P Adamson

It is a little known fact that Caesar uttered these words shortly after his infamous, I came, I saw, I conquered speech. To date, scholar's best stab at a translation is 'Fetch me a nice little car, a Yamaha DX7 and a strawberry icecream.' I do apologise, on with the show...

As mentioned last month, we've had a number of MIDI files submitted by Mr. P Adamson – here are the next three and a reiteration of our request for any pieces of music, musical utilities or general noise making applications.

Claremont – Original Tune suitable for Morris Dancing. The opening notes are an intended plagarism from 'Deck the Halls'.

Country Dance – Original Tune based on a traditional style.

Sing Cuckoo – Old English Tune which uses a double round idea.

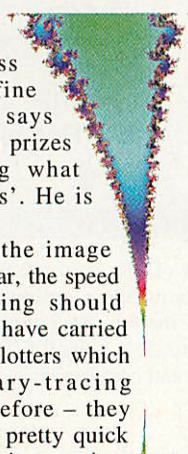
Compatibility table for *INFO programs

Program	RISC OS 2	RISC OS 3.1	RISC OS 3.5
Lottery and *Syndicate*	Yes	Yes	Yes
Liss256	No	No	Yes
Lissajous	Yes	Yes	Yes
Sender	Yes	Yes	Yes
Pixel font	No	Yes	Yes
IfPodule and *IfThereIs*	No	Yes	Yes
Dad and *Tidbits*	Yes	Yes	Yes
BlockSize	No	Yes	Yes
MityMouse	Yes	Yes	Yes
Benoit	Yes	Yes	Yes

Fractally my dear, I don't give a Benoit

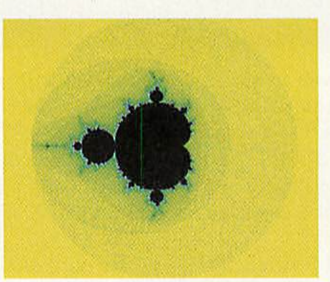
Author: Alistair Turnbull

It's not the AllBran that keeps Alistair Turnbull regular in these pages, but the seemingly endless supply of fine demos. He says 'there are no prizes for guessing what *Benoit* draws'. He is right.



Although the image will be familiar, the speed of the plotting should impress. We have carried Mandelbrot plotters which use boundary-tracing techniques before – they are generally pretty quick and Alistair's is a particularly speedy member of the genre. His FIFO-based technique was invented independently.

Upon running, the full Mandelbrot is shown – use the mouse to select a rectangle to zoom into. Left and right buttons adjust the size, middle selects. A short menu is then provided. You can choose the image size – 'small' means you get a mini-Mandel in the middle of the screen which is correspondingly quicker to plot. The depth you are at, the speed of your machine and your level of patience will determine whether you need to use this option.



You also have a choice of modes ranging from 13 to 21 depending on your monitor type – again there is the obvious trade-off between speed and detail. The number of iterations can be increased from the default 128 – more iterations means greater accuracy of course. The 'density' of the colour bands can be set, more bands meaning more accuracy, and there is a position submenu. From this you can explicitly position the next frame, restart or zoom out. The current positional details are also shown here.



If...

Author: Dave Lawrence

This is a pair of utilities that I've had knocking around for quite some time now (check out the dates!), but a recent request from John Calder of Norwich has dredged them out of the pit.

John wanted to know of the easiest way to detect the existance of various bits of hardware so that his *Boot* sequence could be as generic as possible and installed on all his machines without ending up with annoying error messages about lack of a *FaxPack* (or whatever) during boot up.

I had run into exactly the same situation way back when and had written *IfPodule* to solve the problem, I hope it's what you wanted John.

IfPodule is a 'Utility' and should be first copied somewhere into your Library or Run$Path. It addition to the <podule> parameter, which is compulsory, it can take one, two or three extar parameters:

```
*IfPodule <podule> <command>
```

<command> executed if <podule> installed.

```
*IfPodule <podule> <command_1> <command_2>
```

<command_1> executed if <podule> installed; <command_2> executed if not installed.

```
*IfPodule <podule> <command> <param_1> <param_2>
```

<command> <param_1> executed if <podule> installed; <command> <param_2> executed if not installed

where <podule> can be any of: a partial podule name, a 4-bit simple podule type or a 32-bit ID with the product type in the low 16 bits and the manufacturer in the top 16 bits. For example:

```
*IfPodule SCSI "Echo SCSI installed"
```

will print 'SCSI installed' if any SCSI podule (which admits to being SCSI) is found.

```
*IfPodule FaxPack "Filer_Run !FaxManager" "Echo No Fax"
```

will run the *FaxManager* if the FaxPack card is found, otherwise inform you.

```
*IfPodule &1100A4 "Set Ether3Present" Yes No
```

will set the system variable to Yes or No if Acorn's Ether3 card is found.

```
*IfPodule 15 "Echo Test hardware OK"
```

will work on simple podules which are few and far between, but the above command can still be useful for hardware development.

The second utility *IfThereIs* was written very shortly after *IfPodule* and was intended for the same kind of purpose but dealing with files and other objects. Acorn now supplies *IfThere* in the Risc PC library, but *IfThereIs* is more versatile and has a similar interface to *IfPodule*. As before there can be one, two or three additional parameters supplying either a command, a 'yes' command and a 'no' command or a command and two possible parameters. Of course the <podule> is replaced with a filename. There are also a handful of switches to qualify the name, you can add -not to invert the logic – only really useful for the one parameter command. You can also add any of -File -Dir -App or -Image to qualify exactly what flavour of object you are looking for. For example:

```
*IfThereIs -not -dir $.Out "Echo Out directory missing"
```

Lissajous is More

Author: David Brown

David Brown took time from his A-level studies to supply us with a couple of graphical lovelies. His *Fire* is coming shortly, but *Lissajous* is here for your entertainment now. The image produced is what you would probably get if you dismantled a thermal imaging camera and an oscilloscope and then reassembled the bits to form a single machine. (Don't try this at home, kids.) The sinusoidal blob moves around the screen in an increasingly frenzied manner, adding one to the bytes of screen memory it lands on.

We thought a hi-res Risc PC version might look interesting so with the help of Brian Cooke's *PROCmode*, we have added *Liss256*. This runs in an 800 by 600 true 256 colour mode, with the palette set in a typical Jan Vibe-like psychedelic loop.

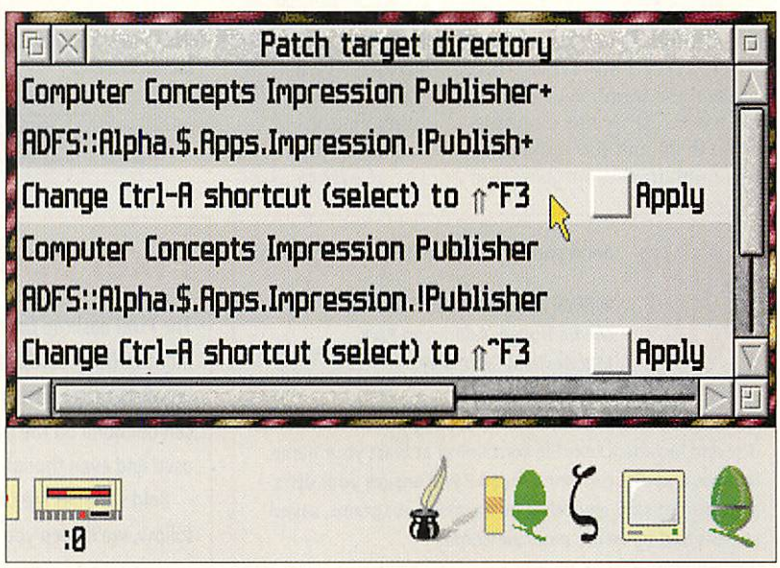


Publisher Patch

Dr. Andrew Wade – a senior lecturer in clinical physiology no less – was apparently 'dead impressed' with Keith Jordan's *Impression Style* patch to move Select All from Ctrl-A to Shift-Ctrl-F3 (April 1995), so much so that he wants to know if there is anyway to apply a similar patch to *Publisher*.

'Obliging' being our middle name, of course there is. On the cover disc you will find the complete set of patches for each of *Style*, *Publisher* and *Publisher Plus*. Having loaded *Patch*, click the patch required and away you go; alternatively copy the files into the *Patches* directory within *Patch*.

The patches only work with specific versions of the software, because the exact address that needs patching moves around between releases. The *Current* directory has patches for the releases of *Style*, *Publisher* and *Publisher Plus* that are current at the time of writing – the *Older* directory gives patches for a common older release version. The version that the patch is intended for is given in the header of the patch – load it into *Edit* to find out.



Dit dit dit, dah dah dah

Author: Steve Eyre

Dig out your Aldiss lamp and give it a polish. This Morse code tutor comes from Steve Eyre and is surely a must for any radio ham, secret agent etc.

'The program is largely self-explanatory, generating 60 seconds of morse code at a time, for comprehension practice, at speeds from one to about 20 words a minute.

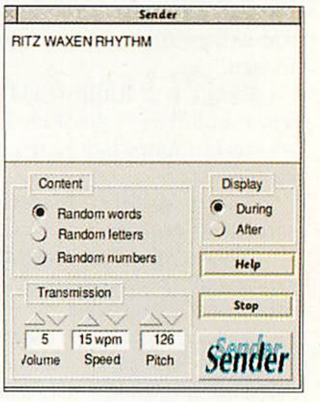
'Apart from a slight lengthening under seven words a minute, the transmission speed of each character is kept constant, whatever operating system you are using. Essentially, the speed control only varies the interval between characters and words, as per RSGB guidelines.' (I've just looked up RSGB in the dictionary but there's nothing between Rate Support Grant and the Royal Scottish Geographical Society. I suppose we non-hams can guess what it means...)

'Only English numbers and characters are used. If you want foreign characters, punctuation, double dutch, (whatever turns you on) alter the DATA statements at the end of the program. There's a morse code table provided as help, and options to alter the pitch, volume, and speed of the transmission.

'Transmission content can be varied between random letters, random five-figure numbers or random words. The words are drawn from DATA statements at the end of the program, which can be altered or added to ad infinitum, as long as words are no longer than seven letters long, and the data statements end with a "*". Changing this option will only take effect from the start of the next transmission.

'There is also an option to have the data written on screen during or after each transmission. All the settings are savable, and reinstate on startup.

'Sound is generated using the default WaveSynth voice, which is fairly acceptable, though not ideal. You can alter this to any resident voice by changing the second parameter of the first ChannelVoice command in the *!Run* file. Of course there's nothing to stop you installing your own voice module. I'm sure members of the Royal Scottish Geographical Society will prefer to use Highland cattle samples. The final ChannelVoice command reinstates the WaveSynth voice on exit.'



Lottery Fever...

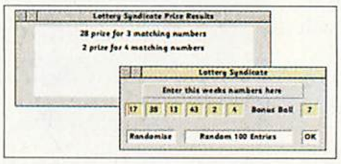
Author: Stuart Allison

...has gripped the nation. Well, it's certainly spurred on a good number of our readership to write Lottery-related programs. Over the past few months we've carried a silly or two to help predict those six magic numbers, but here is an altogether more sensible application from Stuart Allison.

In fact, Stuart provides not one but two lottery programs that will be a boon to those of you in syndicates. *Lottery* is designed to take the trouble out of checking your numbers if you have multiple entries.

Inside the *Lottery* directory is a simple text file called *Syndicate*. The first line contains the number of entries you have (20 in the example on the disc) and the remaining lines contain the numbers for each entry, separated by commas. Simply wait until the beaming face of Anthea Turner appears on your television screen and, providing it's not an old edition of Blue Peter, install the application on the icon bar.

Click on the *Lottery* icon to bring up a small window containing slots for you to fill in the magic six numbers as they roll out of Arthur's bottom – plus the bonus ball of course. When you have done so, the numbers will be checked against your syndicate file and you will be told how many matches, if any, you have. Two other buttons feature on the *Lottery* window to help test your entry. *Randomise* simply provides one random selection.



Alternatively, use the other button to 'enter' your numbers over 100 weeks and see how many prizes in total you win. Stuart warns 'a few goes at this option may cause you to stop investing.' The number 100 here is definable from the main menu and another menu option allows you to switch off the display if testing over a lot of theoretical weeks.

One extra function of *Lottery* is to provide statistics about previous weeks. After you have entered the week's real numbers, they can be saved in a database (using the Add Data option on the main menu). A simple statistics window is available off the menu telling you how many times each number has come up, and also the frequencies for groups of numbers – one to nine, 10 to 19 and so on.

Finally, if you can't be bothered to create your syndicate file by hand using *Edit* or the like, run *Syndicate*. Once installed, another simple window can be opened. Enter the number of entries you want to make in the icon provided and that many random sets will be created. Click OK if you want to save them as a text file. Obviously, save this as *Lottery.Syndicate* if you want the Lottery program to use the numbers generated.

***QUIT**

Send your bits, and indeed your bytes to:

***INFO, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP.**

Please put your name, address and program title on every disc and include a text file containing at least your name, address and disc contents. An SAE will ensure your discs are returned and any other instructions, diagrams, saved screens and so on are most welcome.

Pixel update

The Pixel desktop font has undergone a couple of revisions in the last couple of months. (May 1995). The changes involve some slight character redesiging and a little bit of character positioning to the Fixed version. The source sprites and final font files can be found on the cover disc. The next revision of *Zap* allows bitmaps fonts to be used and even though we say so ourselves, text does look rather nice in Pixel.

Bold varieties are being worked on as we speak, and an oblique version may well follow, we'll keep you posted.

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Techniquest

Techniquest is a science and technology museum in Wales, and many of its displays are computerised with Acorn machines. We sent intrepid reporter Kathy Brown to investigate and find out how Acorn is bringing museums to life.

Acorn's C/C++ compiler

It's here at last. We take a look at Acorn's new C/C++ compiler, and compare it to the other systems available for object-oriented programmers.

Animation software

Pete Worrall takes a look at the two latest animation packages for the Archimedes – Minerva's *PrimeMover* and Iota's *Complete Animator* – and decides which one can turn you into the Walt Disney of the nineties.

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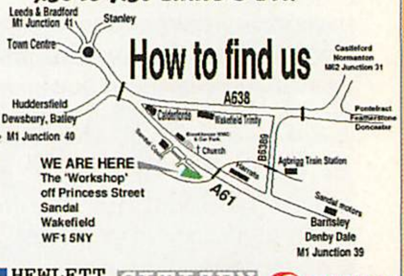
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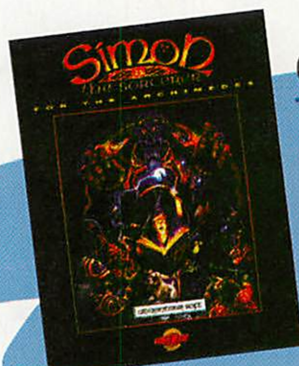
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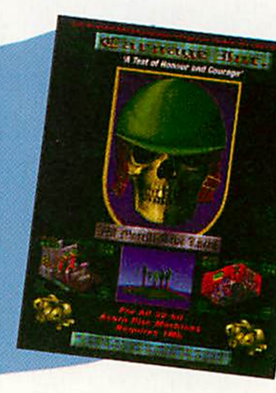
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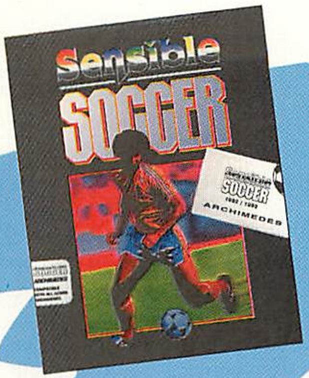
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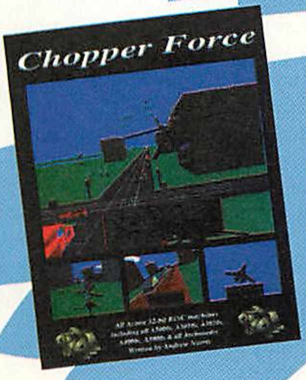
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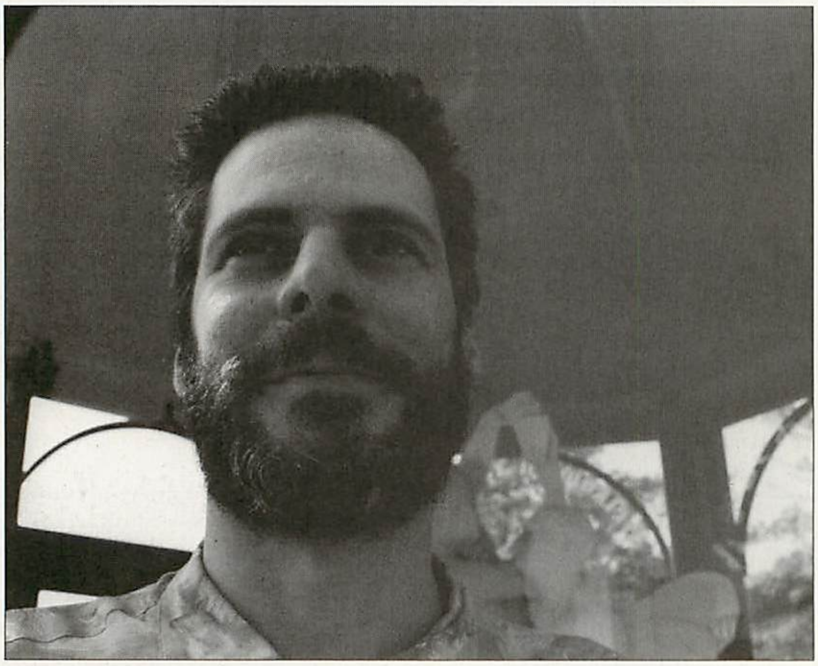
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REGAN

The Moxon Interview

Quentin Pain

> **When children leave school, they'll want to use the same systems in real life as they did at school**

Quentin Pain smiles with his eyes. He also laughs a lot while remembering the past and contemplating the future. Given the life story of Quentin Pain, it's not surprising: there's lots to be happy about.

Quentin, along with his wife Lynne, runs Apricote Studios, purveyors of easy-to-use accounting software. Based in the middle of the Cambridgeshire countryside, Apricote is a genuine cottage industry, and it has an interesting history.

'Back in 1980, Lynne and I set up Cambridge's first ever motorcycle courier company,' recalls Quentin. 'After a year of doing the accounts manually for the company, my brother persuaded me that with a BBC Model A and a course in BASIC programming, I could computerise the whole thing.

'So I started to write an accounting system, purely for our own use, and when we came to sell the company to our partner in 1985, we had quite a good system.'

This is where people expect Quentin to say 'so I decided to set up my own company selling the package commercially', but that isn't what happened. Oh no.

'Lynne and I were heavily into playing in bands,' says Quentin. 'In the late 1970s we played melodic rock in a band, and at one gig the crowd started pogo-ing up and down. Suddenly, we were a punk band. Unfortunately, we were rubbish.

'So when we sold the business, we decided we wanted to become rock stars. We formed a group called Sahara, and went in for the Cambridge rock contest a few times. But the money ran out, so we had to move house and think again. I've still got everything we recorded – we were going to release an album and everything.'

Luckily, Quentin had been supporting the courier firm's accounting package throughout his wild rock years, during which time it had graduated onto a Model B, and then a Master.

'I reckoned it was good enough to launch as a standalone product,' says Quentin. 'I called it *The Account Book*, which I reckoned was an original enough name. The manuals were photocopied and hand-coloured by Lynne, just to add that little something. There are still about 600 users of *The Account Book*, and they still get full support, which isn't bad when you consider the package was launched back in 1987.

'I still have my BBC Model B. It's in the airing cupboard, I think. The only problem is that in the countryside we have quite a few mice, and a while ago one crawled through the punched-out Econet socket and used the circuit board as a bathroom. This kind of forced me to upgrade to an Archimedes.'

So *Prophet* was written over the next year, and was released in 1991. It's been free upgrades and support ever since: even the upgrade to the all-new *Prophet 2* is cheap. The emphasis is on user-friendliness and a lack of accounting jargon, but with a powerful double-entry system buried beneath the surface.

'You can use *Prophet* to deal directly with the Inland Revenue, and you don't need to be an accountant,' claims Quentin. 'I'm not an accountant, but I reckon I can handle almost any question an accountant can throw at me. I fully understand how double-entry book keeping works and why it is the standard way of doing things, but I can also relate to non-accountants.

'Take the example of buying £10 worth of petrol with a cheque. Simple enough, you might think. But in double-entry book keeping you need four accounts: your petrol account, your bank account, a supplier account and a VAT account. And when you pay by cheque you'd think your bank account would be debited by £10, but in fact it's credited with £10.

'*Sage* and most other packages do accounting the traditional way, which is why it's so hard to understand what's going on. In my packages, you create one entry – "pay for £10 worth of petrol from my bank account", for example – and that's it, but underneath everything is done using double-entry book keeping.'

And the future for Apricote Studios?

'I'm hoping that when children leave school and want to set up their own businesses, they'll want to use the same systems in real life as they did at school,' says Quentin. 'So they'll buy Acorns, and they'll need an accounting package. That's the theory, and in the meantime we're selling plenty of *Prophets*.'

Quentin Pain smiles with his eyes. He also laughs a lot. It's infectious. AU

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